



SARD-SC

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Kigoma Regional Commissioner applauds the SARD-SC project for improved cassava productivity



The regional commissioner and his entourage visiting the Kibondo Big Power Group.

The newly appointed executive officers of Tanzanian Kigoma Region, Brigadier General Emmanuel Maganga, and Mr Charles Pallangyo visited one of the SARD-SC project sites in the Kibondo District. About 105 officials from five districts of Kigoma Region were on the entourage of the executive officers who visited the Kibondo Big Power Group, a cassava farmers' and processors' group involved in project activities in the District.

The chairperson of Kibondo Big Power Group, Mr Kennedy Salundari, welcomed the visitors to the Group's processing center, where they saw various processing equipment at work. Salundari commended the project for improving the group's processing facility as an initiative to reduce cassava postharvest losses. He said: "Apart from support in postharvest management, IITA/SARD-SC has also brought about a significant change in our cassava farming method by training us on good agronomic practices." Salundari added that other farmers around the vicinity who were not

the target beneficiaries have also benefited from their improved capacity as a result of the project. "Things have not remained the same but have changed for the better," he added on behalf of fellow group members.

Thereafter, the Regional Commissioner (RC), Brigadier Maganga, and his delegation visited the project's demonstration plots as well as a cassava farm owned by Kibondo Big Power Group. In a discussion with the SARD-SC project representative, Hon. Maganga bemoaned the past incidents of food shortages in the region as against the current high cassava productivity. Dr Veronica Uzokwe, who represented the project at the event, explained to the RC that farmers used to plant local varieties which are low yielding and succumb easily to major cassava pests and diseases. She further explained that the advent of the SARD-SC project has helped to address this challenge by promoting the use of improved varieties in collaboration with the Lake Zone Agricultural Research and Development

Institute (LZARDI) as these varieties have high yield potential and are resistant to diseases.

The RC in his response said: "I am very impressed with what SARD-SC has done in Kigoma Region. This is what is expected from all other projects. The beneficiaries/farmers should be guided on how to sustain their activities even when the project ends." He also instructed the Regional Agricultural Officer to find out how the local farmers in the region could have access to planting material of improved cassava varieties.

"I am very impressed with what SARD-SC has done in Kigoma Region. This is what is expected from all other projects. The beneficiaries/farmers should be guided on how to sustain their activities even when the project ends."

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IITA Zambia Processing center is operational

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The processing center at IITA, Lusaka, Zambia, SARAH-Hub.

The Zambia IITA Youth Agripreneurs (ZIYA) completed one week training workshop on cassava processing and utilization at SARAH-HUB cassava processing center with 11 female youth participants.

This was a six (6) days training aimed to empower youths in Zambia with the knowledge of processing and utilization of cassava into different products for their small-to-medium enterprise.

The training was composed of the theory and practical aspect, the major topics includes; basic techniques in the production of high quality cassava flour (HQCF), Fufu and gari, production of soy flour, food safety and quality and safety and hygiene in the processing center. The youth were also introduced to the various processing equipment such as the grater, chipper, presser, roasting pan, sieve and the miller. During the practical part of the training, the youth familiarized themselves with the various equipment in the processing center by using them to produce intermediate cassava products such as HQCF, fufu, gari and cassava chips.

The youth also got to appreciate the use of HQCF in the production of various



Young ladies learning to process cassava and preparing different cassava products.

confectionary and cassava-based products such as cupcakes, biscuits, tid-bits, and chin-chin, bread and cassava doughnuts. During the training the need to fortify the products with 20 % soy flour was emphasized to help improve the nutritional quality of the cassava-based products.

On the last day of training, participants were divided into two group and they prepared five 100 % and five 10% fortified cassava-based products to be exhibited at the closing ceremony. In attendance at the ceremony were the DDG Cooperate services Ms. Hilde Koper, Director SARAH, Dr. Chikoye, IRS and NRS staff to listen to the youths explain the various products on display and taste. The youth were also presented with certificates of attendance.

On behalf of ZIYA, Ms. Chilombo Kaumba, gave a vote of thanks in which she thanked IITA for according them this opportunity to be trained in the various ways to process cassava and how to diversify the use of cassava. She said: "We would use the knowledge gained to start up our businesses so that we generate our income and be able to employ other youths in our communities."

The second processing center constructed at Zambia Agricultural Research Institute (ZARI) in Mansa District will be officially launched on 12 April and will be playing the same role. Mrs Mary Mwewa, the post-harvest technician of the national roots and tubers program from ZARI Mansa was also trained and she will be leading the training of other women at that center.



Cassava

Project improves lives and livelihoods of cassava farmers in Zambia

The cassava intervention program in Zambia has started to positively impact the livelihoods of beneficiaries. In Luapula Province, inroads have been made in ensuring that cassava can compete with maize—the staple crop—as a top source of income among smallholder farming families.

Specifically, trainings that were conducted by the Seed Control and Certification Institute (SCCI), a partner in the project, have had significant impact among SARD-SC participating farmers. The farmers who were trained in Mansa District as seed multipliers received cuttings of improved cassava varieties (mostly Mweru and Chila) with the support of the SARD-SC project. Many of these trained farmers undertook the



Mr. and Mrs. Musenge.

initiative of producing cassava seed for sale, which have been certified by SCCI as being standard planting materials. Consequently, these farmers have been requested by Total Land Care (TLC), a development NGO, to supply 586 bundles of cassava planting materials (100 by 1 meter) for distribution in the northern parts of Zambia. Eight project beneficiary farmers participated in this exercise. This fetched the farmers approximately US\$2500 in income. Following is the summary report from some of the farmers who participated in the exercise.

Mr Obby Musenge

Mr Musenge and his wife have two hectares of farmland planted with improved cassava variety Mweru from the project. Musenge narrated how he supplied planting materials from his cassava farm to Zambia Breweries. The materials supplied were enough to cover five hectares of a field spaced at 1 m by 1 m. He is also one of the beneficiaries of the seed growers' training. So far, Musenge has sold 150 bundles of planting materials worth about US\$525. He narrates his experience:

“Cassava is proving to be a better alternative source of income as the crop is able to grow exceptionally well in marginal soils with little or no fertilizer application. It has greatly supplemented the food security at home directly

and indirectly through trading it as seed. After I had cut the crop, my wife and children went into the field and harvested the roots which they dried and sold to Zambia Breweries. We earned money both as seed producers and root producers. We plan on increasing the cassava holding in the hope that we earn even more in the next season”.

Musenge added that he used his earnings from the sale of both cuttings and cassava roots to buy food for his household, thus improving his family's food security.

Mr Goodson Kaoma

Another SARD-SC beneficiary, Mr Goodson Kaoma, sold 50 bundles of planting materials, which he realized from a farm holding of 1 hectare and earned about US\$175. Because of this, he plans to increase his holding with his newfound benefit in working with cassava. He states:

“It is encouraging that the market is finally opening up and directly engaging farmers in trading with seed. In the recent past, only the research station was responsible for dealing with seed. But now, through IITA's initiative to partner with SCCI and farmers, we are able to embrace this newfound business. The onus is upon each individual farmer to work hard so that this demand is sustained, otherwise the buyers will look elsewhere or revert to trading with the research institute directly. Through these earnings, I am now able to buy school books for my children and also support other small activities.”



Mr. Goodson Kaoma on his cassava field.

SARD-SC project stimulates rural economy through cassava community processing centers

The Cassava Community Processing Centers (CCPCs) are currently stimulating the economy and creating employment to the rural populations of Kavumu village, in the Kabare territory of South-Kivu province of the DR Congo. Until the introduction of the CCPC in early 2015, there was serious unemployment for the inhabitants of Kavumu community.

The CCPC is a collective agroprocessing enterprise made of farmers' groups for the processing of fresh cassava roots, High Quality Cassava Flour, fermented flour, garri, and starch. These activities within the Center bring the community together, boost the market for cassava roots, flour, and cassava recipes, and facilitate access to healthy cassava planting materials through the multiplication farms by CCPC members and the local farmers around the factory. Through the SARD-SC project, members of the CCPC were trained on good agronomic practices in cassava cropping systems, business plan development, and market linkage. At the end of the training, participants realized the many opportunities and profitable businesses in the cassava sector, and have now started practicing the techniques they learned. They have also started training other small associations and farmer groups within their community.

In addition to the training, the project gave the organization healthy cassava planting materials for a 2 ha plot from which they harvested 67 tons of raw roots for US\$5955.5 at 80 Fc/kg. Kavumu CCPC now employs five regular staff receiving monthly salaries as well as casual workers (around 20 persons each day).

Initially, market for the cassava products was a big problem until the CCPC was linked to the IITA Kalambo Youth Agripreneurs (IKYA). As the CCPC started boosting the market with cassava products, members of the Kavumu community were encouraged to get more involved in the cassava sector and many have benefitted greatly from it. A very good example is a young woman named Mapendo Kabiona Benedicte who is one of the Kavumu CCPC staff. She is the fifth child from a family of seven children (three girls and four boys) whose parents are farmers. Through the support of her parents, she had earlier obtained a diploma in 2014 but she couldn't gain admission into university to pursue a degree due to lack



Cassava processing factory.

of funds. As a result, she looked for a job, even as a primary school teacher, but could not get one.

However, following her successful participation in the SARD-SC project training Benedicte was offered a job at

Kavumu CCPC with a monthly salary of US\$60. In addition, she has been able to convince her parents to produce more cassava to supply CCPC. With increased resources, she has enrolled to study a course in the university.



Cassava mash for grating.



The young lady, Kabiona benedicte stands beside a fellow IKYA member.

Collaboration to improve cassava farmers' livelihoods in DRC

Cassava is the main staple crop and source of income for the rural dwellers in the Democratic Republic of Congo. Hence, the country, IFPRI, IITA, and the SARD-SC project collaborated and initiated a program to improve the means of livelihood of cassava farmers' in the country.

The DRC government established an agro-park and also funded an extension service to backstop farmers' cassava production. The agro-industrial park prepared 300 ha of land for the farmers (one hectare per household) and built a cassava processing unit. The farmers planted the improved variety OBAMA (TME 419), IITA/IFPRI purchased the cassava processing machines, and the SARD-SC project installed a flash dryer. The agripreneurs processed cassava roots into quality cassava flour.

This collaboration resulted into increased cassava productivity in the country. Average cassava root yield in the concerned farmer fields was 20 t/ha. The harvested roots were sold to the agripreneurs at US\$80/t



Manual cassava peeling taking place.

(including peeling costs). The agripreneurs purchased and processed the cassava into flour and sold it to the Bukanga Lonzo Agro-industrial Park at US\$675/t. After the deduction of all the production charges, the remaining amount was given to the owner of the harvested field. Also, 57 casual workers were hired on a daily basis.

They were in charge of cassava peeling (40), washing (10), transport (2), grating (1), pressing (1), drying (1), and bagging (2). Each of them was paid US\$3 per day. So, for the 2016–2017 cassava cropping season, farmers planned to plant 1000 hectares of cassava farm of improved OBAMA variety.

Women trained on value addition to cassava roots in Sierra Leone

In order to further build the capacity of women in rural and urban communities in cassava value addition, the project held a three-day training workshop for Makeni city council women in Sierra Leone. The 49 participants from Rogbaneh Innovation Platform were trained on cassava product development. Over 22 products were made from HQCF such as fish balls and birthday cakes. The training attracted many dignitaries from MAFFs, the IITA/SARD-SC project, and the country's Minister of Agriculture, Forestry and Food Security, Professor Monty Jones. The three-day training was at the instance of the Mayor of Makeni city who wanted the capacity of the women to be built in cassava value addition.

While addressing the participants, the IITA Country Director in Sierra Leone, Dr Abaka Whyte, said that IITA, in partnership with others, was ready to help to drastically cut the rising import bill of wheat and wheat flour into the country by ensuring that the production and utilization of HQCF is effectively and efficiently used for making different kinds of confectionery. He disclosed that a recent study done by the Njala Agricultural Research Centre (NARC) shows that several parts of the cassava crop including the roots and leaves are all profitable ventures and that the profitability of the cassava value chain business increases with mechanization. He also stressed that cassava plays

a vital role as a source of food and raw material for industries. Dr Marie O. Yomeni, IITA/SARD-SC Cassava Commodity Specialist, gave an overview of the SARD-SC Project.

Other speakers reinforced what had been said before. They however expressed the need for the people to diversify their eating habits, especially by educating and training their children to feed on other available food sources, so as to reduce their dependence on rice.

In his keynote address, the Hon Minister of Agriculture, Forestry and Food Security, Prof Monty Jones, applauded the training initiative as it provided direct economic impact on the community and participants and contributed to the President's agenda which is "Prosperity

for all". "Teaching women on product development and preparation is another step in building their capacity to become trainers within their communities as well as making money from cassava for food and sales. "The development of the roots into several marketable products will also maximize benefits for processors and other actors in the cassava value chain as well as contribute to the economy," the Minister said. He therefore encouraged participants to use the opportunity as a means of improving the quality of their lives by embracing the use of cassava flour for making bread and other confectionery so as to conserve the country's scarce foreign exchange. The occasion ended with the presentation of certificates to the participants by the Minister.



Prof Monty Jones presenting certificates to the training participants.

Project beneficiaries create wealth from cassava processing and product development

The SARD-SC project supports cassava value chain promotion by training women on how to process cassava into different products in order to create wealth. At the newly constructed community processing center at Gaindema in Tonkolili District named Manenkoh Cassava Processing Center, three training events were undertaken during the last quarter of 2016. They are:

1. Training on cassava processing machine operations and maintenance

This training targeted a group of 15 participants (three women and 12 men). The objective was to equip them with the requisite information and knowledge on how to efficiently and effectively handle the cassava processing machines and equipment provided for the center. On this score, they were instructed in both theory and practice on how the machines and equipment were to be operated and maintained in good working condition. The training lasted for two days. The facilitator for the training was Mr Kenneth Vandy (a local fabricator). He stressed the importance of proper use and maintenance of processing equipment and advised that machines be serviced regularly to make the center run efficiently.

2. Training on cassava processing and product development

A group of 40 people (36 women and four men) were also trained in cassava processing and product development.



Cakes made from cassava flour on display.

The training which lasted for five days was conducted by people who had earlier been trained by the project. The trainers included Agnes Mamie Gbani from Magbenyani Women Group from Mandu (Bo District), Hawa Bio from Koribondo (Bo District), and Victoria Kamanda (Vickam's Enterprises) from Bo city.

There were practical training sessions on cassava processing from peeling, washing, grating, fermenting, pressing, sieving, frying, and grinding to bagging. Participants were trained on how to process cassava into quality garri, HQCF, fine starch, and odorless fufu.

At the end of the training, the trainees and trainers produced the four main products of cassava (garri, fufu, HQCF,

and fine starch). The trainees also learned how to fortify garri using beans, groundnut, soybean, and coconut. Some of the products realized were coconut garri, coconut groundnut blend, and powdered garri. They were also taught how to bake cassava rich cakes the local way and how to also get cassava products for akara, crochette, and cassava bread, among others.

HQCF was used to make 25 different products including meat balls, fish balls, birthday cakes, fish pie, biscuits, cookies, and tidbits. They were all made using locally improvised ovens.

3. Training on good governance, leadership, and organizational management



Women participants at the end of the training displaying their certificates.

A 15-man team of the Center (six women and nine men) was also trained on good governance, leadership, and organizational management. The purpose was to teach the team how to run the center efficiently and effectively in a transparent and accountable manner in order to generate profit. During the course of the training, the trainees learned about the meaning and importance of keeping records, and how to handle stock control books, a machine maintenance log book, the fuel usage log book, the credit book, credit purchase, and general monthly cash ledger, among many others.

At the end of the training, participants expressed their gratitude to the SARD-SC project for the various skills they had acquired which would empower them to



Women being trained on how to make cassava cakes.

generate more income from engaging and make them self-reliant in their communities in cassava production and processing.

Rural community youth groups trained on cassava best-bet agronomic practices

Some youth groups from four project communities were given a hands-on training on best-bet agronomic practices for improving cassava yield in Sierra Leone. The training was conducted by the SARD-SC project in September 2016.

Each community group developed, agreed to and signed a Memorandum of Agreement (MoA) with the SARD-SC project to guide each party on expectations. The project developed a training module on “best-bet agronomic practices for cassava”, which was used as a guide to train the four groups to enhance their capacity in producing cassava in their respective communities in the project area with the aim of linking producers to processors for the supply of raw material for the processing centers in their communities.

The Youth Group Communities include: Largor (Sewa IP), Massahun Fortune (Sewa IP), Gbaama (Kambui IP), and Mabarr Line (Rogbaneh IP).

A larger percentage of the youth (47 men and 34 women) came from rural settings, are all engaged in farming, and with group work experience working in their respective communities. All the youth had a common interest to grow cassava on a commercial basis.

The training was conducted by project staff focused on site selection, land preparation, planting material selection, field laying, and methods of planting. Other areas were:

- Common pests and diseases of cassava.



Sierra Leone youth working on their farm.

- Methods of control of major pests and diseases.
- Prevention and surveillance of cassava diseases and pests.
- Wrap-up on training modules.

A total of 81 participants were trained in all aspects of cassava farming and good management practices to boost yield.

Post course evaluation: All 81 participants could carry out plot layout practices that could safeguard plant population per unit area and undertake cultural practices and pest control measures that assure high farm yield.



Some of the youth's products.

Cassava value chain actors meet on common ground

A field day was held on a 10 ha IITA/SARD-SC cassava demonstration field situated in Gbanka Potho village in Bomabalii District, Sierra Leone. Participants were drawn from a wide range of communities involved in the cassava value chain. They are the Ministry of Agriculture Forestry and Food Security (MAFFS) (26), Sierra Leone Agricultural Research Institute (SLARI) (26), national farmers (4), University of Makeni (UNIMAK) (1), representatives of community processing centers (12), representatives of farmer-based organizations (46), media (SLBC, AYV Radio and Television, Standard Times Newspaper) (8), input suppliers (SeedTech) (4), District and Local Council Reps (7), farmers (20), and traders (11).

The overall goal was to develop and promote the cassava value chain in Sierra Leone in conformity with the Presidential Initiative, emphasizing food security and sustained production and productivity. The objectives of the field day were to:

- Create awareness on the availability of current improved cassava varieties (SLICASS series) released by SLeSCA of MAFFS.
- Show performance of cassava under mechanized tillage practice.
- Stimulate participants' interest in commercial cassava farming and processing.

The 10 ha field had been planted with newly released cassava varieties by the Sierra Leone Seeds Certification Agency (SLeSCA) of the Ministry of Agriculture, Forestry and Food Security (MAFFS). The theme of the field day was "Increasing Access to Improved Cassava (SLICASS) varieties".

The field day was attended by several dignitaries, including the paramount chief of Shebora Chiefdom and the Mayor of Makeni City. The Director General of SLARI, Dr Joseph M. Kargbo, commended the SARD-SC program for helping the Institute to generate meaningful financial and economic rewards in the promotion of such newly released varieties. He emphasized that cassava is one of the leading crops in the country with a huge potential to significantly contribute to transforming the socioeconomic development of the rural community. He stated that his Institute would continue to work hard, in collaboration with IITA/SARD-SC, to generate appropriate technologies that would help to transform the cassava sector.



Minister of Agriculture Prof Monty Jones on field tour of cassava demo farm along with Dr Marie Yomeni and Dr Abaka Whyte, IITA Country Representative.

In his keynote address, the Minister of MAFFS, Professor Monty P. Jones commended the IITA/SARD-SC project and its collaborating partner, SLARI, for such an initiative towards realizing the President's Agenda of "Prosperity for all." He urged the project to always make available cassava varieties to the farmers which would enhance their

adoption, and thus increase productivity. The Minister also met and discussed with some of the private sector actors working with women's groups on the cassava value chain. At the end of the tour, he strongly requested IITA/SARD-SC to extend this activity to the remaining two regions of the country.



Hon. Prof Monty Jones in discussion with Dr John Bert, CEO of Village Hope.



Woman peeling cassava roots.



Maize

Maize value chain expands beneficiary countries to six and upscales capacity building initiatives for partners

SARD-SC Maize value chain continued to vigorously pursue activities aimed at accelerating transformational impact with the crop. In addition to the ongoing field activities and fostering of partnerships and linkages across Maize innovation platforms established in project countries, a flurry of capacity building engagements were conducted during the third quarter of 2016. In this edition of the Newsletter, some of these capacity building engagements and other activities are highlighted.

Launch of Maize Innovation Platforms in Cameroon

Maize value chain commences accelerated implementation of Project activities in Cameroon during the quarter under review.

The launch of an Innovation Platform (IP) on 8 August 2016 at the Regional Office of the Institute of Agricultural Research for Development (IRAD), Bambui, is yet another milestone in the implementation of the SARD-SC Maize project. When the Government of Cameroon requested to participate in the SARD-SC Project, several challenges that could be addressed using the innovation platform model were identified along the maize

value chain. It is heartening to report that months of consultations involving the Government of Cameroon, the SARD-SC Maize Project Team at IITA, and key officers of the African Development Bank (AfDB) finally enabled the launch of the Maize Component of the project in Cameroon. This brings to five the number of countries where the Maize Component of the SARD-SC Project is being implemented. The other four countries are Ghana, Mali, Nigeria, and Zambia. Having implemented the project in the four countries for over three years, the lessons so far learnt are set to be applied in Cameroon and have

been tailored to meet the challenges and opportunities in a manner that can rapidly raise maize productivity and incomes of targeted farmers and other stakeholders along the maize value chain.

A total of 41 participants comprising 16 females and 25 males representing 10 stakeholder categories attended the launch of the IP.

Some of the stakeholders present included the Ministry of Scientific Research and Development represented by the Regional Delegate, and the Director General of IRAD represented by the Director of Farming systems along with a handful of other staff representing the research community, traditional rulers, the IITA SARD-SC Project Team, North-West regional authorities, farmers, NGOs, maize merchants, processors, financial institutions, and input dealers. The National Coordinator for the SARD-SC Cassava team in Cameroon also attended.

The launching ceremony of the IP was declared opened by the representative of the DG of IRAD while a welcome address was given by the Regional Head of IRAD at Bambui. In declaring the ceremony open, the representative expressed his appreciation of the support being provided by the AfDB to the Government of Cameroon at a time when the Government is recommitting itself to growing the agricultural sector by attracting development partners and investors. According to him, the Government of Cameroon is determined now more than ever to minimize the country's dependence on food imports, especially maize, for which it has a comparative advantage in production.

During the ceremony, the concept of an IP was introduced and explained with a brief lecture given by one of the delegates on the SARD-SC Maize Team from Nigeria. An interactive session formed part of the launch ceremony during which several delegates expressed their satisfaction, noting that this was



A section of participants at SARD-SC Maize IP launch in Cameroon.



Group picture of participants.

the first time they were being invited to a meeting of this nature that involved diverse but relevant stakeholders. Some of the participants pledged to actively participate in the IP. A major business linkage that could pillar the IP was officially announced to the farmers' delight during the ceremony. This was announced by Grassland Venture (a major maize aggregator that has over 2000 tons of maize procurement indents annually) and NORWE-FUND, an NGO with a strong interest in rural development providing microcredit to smallholder farmers.



A section of participants at SARD-SC Maize IP launch in Cameroon.

Training on how to conduct community analysis in Cameroon

SARD-SC Maize has commenced Capacity Building training workshops for the conduct of community analysis for IRAD staff involved in the Maize IP in Cameroon.

The training was held for 13 staff of national partners to the SARD-SC project: five delegates and six extension officers, a scientist, and a US Peace Corps volunteer (seven males including a senior economist from IRAD - Dr Fidelix and six females) at Bambui, Bamenda, Cameroon.

The training modules included:

- Participatory research and extension methodology
- Community resource mapping
- Livelihood analysis
- Institutional analysis
- Market analysis
- Crops and livestock systems and prioritization
- Constraints identification and prioritization

During this first workshop, the concept of the IP was further expounded and the tools for the conduct of community analysis were made available to all participants.

Afterwards, the participants were grouped into two teams and helped to use the skills they had acquired to conduct the community analysis in two communities - Bambili and Bambui. The community analysis conducted in these communities coincided with a market day which distracted a number of farmers. The involvement of a local Chief was very helpful in securing participation of a segment of farmers during the exercise.



Some of the trainees at the SARD-SC maize workshop on community analysis, IRAD Regional Center, Bambui, Cameroon.

On the second day, each of the two teams made brief presentations on their findings which provided the basis to teach how IP business plans are generated from the community analysis report. The major output of the training exercises was a summarized business

plan for the IP in Cameroon. With this business plan in place, it is anticipated farmers and stakeholders in the IP will get off to a good start in forming the necessary and mutually beneficial linkages.



Part of a street market in Bambui, Cameroon.

Capacity building for conducting community analysis for national partners

Maize value chain held a capacity building training for national partners in order to fast track the establishment of a maize IP in DR Congo. As part of technical assistance to enable the smooth take off of IPs in DR Congo, two male staff of the national partner INERA, DR Congo were invited and trained for three days at KADP, Kaduna by the Country Coordinator, SARD-SC Maize Nigeria from 1 to 3 September 2016. Until the dream of the African Union(AU) to generate seamless travel across Africa materializes, pan-African projects will continue to think of innovative ways to ensure that knowledge and business occur between African nations. The training for the two in another country became necessary due to the challenge of visa acquisition leading to the decision to strengthen identified IP champions to drive the process of further training and IP development in DR Congo. The lessons gained from implementing the SARD-SC Project in Nigeria were applied to improve learning experiences for the trainees.

The topics covered were:

- Essentials of IP set up
- Participatory research and extension methodology
- Community resource mapping



Dr Mbuya Amand (L) maize breeder and Dr Kalambaie Binm, socioeconomist attended the training in Nigeria.

- Livelihood analysis
- Institutional analysis
- Market analysis
- Crops and livestock systems and prioritization
- Constraints identification and prioritization
- How to develop business plan for IPs

Training methods consisted of lectures, brainstorming/interactive sessions, case studies, and a review of past reports of community analysis conducted in three other countries.

During the workshop, the concept of the IP was explained and the tools for the conduct of the community analysis were made available to the participants. The lecture notes/reports and scheme of how to conduct the community analysis as well as how to generate a business plan from the exercise were made available to the participants prior to their departure.

ToT Workshop for extension agents on Novel Weed Control and GAP for maize-based systems at IPs in Nigeria

The SARD-SC Maize Project being implemented by IITA in Nigeria involves a range of partners each making their unique contributions to the operationalization of the three IPs set up in Nigeria to achieve the three main objectives of the SARD-SC program namely:

- Increase farmer yields by 20%.
- Increase household food security by 20%.
- Increase household incomes by over \$300/annum.

The project has devoted considerable effort in building the capacity of extension agents working to demonstrate the value proposition of using improved varieties, technologies, and basic principles of farming as a business (FaaB) to targeted farmers. In 2015, the new agronomic practice of doubling plant stands resulted in a two-fold increase in maize yields. A collateral benefit of this increase in density is the

use of post-emergent herbicides, a cost effective and practical way of controlling weeds given the increased plant density, as a complimentary technology being

introduced simultaneously. Farmers that continued to use traditional weeding methods experienced significant crop stand losses during weeding, owing



Participants at the ToT workshop.

to the denseness of the maize stands. In plots treated with herbicides, losses of crop stands were insignificant and yields were remarkably higher than hoe-weeded plots. In addition, wide variations were observed in terms of optimal results from herbicide applications supervised by different extension agents on farmer plots. Consequently, the project decided to train frontline extension agents on herbicide use and good agricultural practices, a sine quo non to empowering farmers to do the same.

The Training of Trainers (ToT) workshop was organized at the KADP training hall, KADP HQ Kaduna, Kaduna State, Nigeria on 14 June 2016 for extension agents from partner institutions working with targeted farmer's providing advisory services with the following objectives:

- Good agricultural practices and maize agronomy
- Weed control methods especially herbicide use in maize
- Maize–Soybean systems and weed management options
- Double density and fertilization in maize
- Farmers training techniques and tools.

The workshop provided lectures, group work, and practical demonstrations with examples. Resource persons came from the Institute of Agricultural Research, Ahmadu Bello University, the University of Ilorin, and IITA. From the pre-training evaluation conducted, it was found that only 35% of the participants had a fair understanding of chemical weed control methods prior to the workshop and only about 10% had used pre-emergence and post-emergence herbicides for maize. More than 60% of the participants reported failure when they used post-emergence herbicides.

At the end of the workshop, more than 69% of the participants were able to demonstrate the application of herbicides while 84% correctly understood how post-emergence



Participants in discussion.

herbicides are applied to maize. All the participants understood why the same herbicides cannot be used in maize–soybean intercropping.

At the end of the workshop, all the participants were given targets to train at least 30 farmers within a week of the

workshop in their respective IPs on weed control and Good Agricultural Practices (GAPs) for maize and soybean. SARD-SC will in future endeavor to ensure extension agents are appropriately trained on herbicide application as part of the project's capacity building efforts in 2016.



Participants at the workshop.

Gender Mainstreaming Workshop for project partners in Nigeria and Zambia

A 3-day workshop on participatory gender mainstreaming in the SARD-SC Maize project was conducted at Kaduna State Agricultural Development Project (KADP) headquarters, Kaduna, Nigeria, from 29 August to 1 September 2016.

The aim of the workshop was to enhance gender-sensitive technology development and dissemination in order to boost productivity and income of a broad segment of targeted maize farmers, in particular women.

The SARD-SC Maize project is currently being executed in over 60 communities across six states of Nigeria as well as in five (Cameroon, DR Congo, Ghana, Zambia, and Mali) other countries.

The workshop, organized into four distinct sessions, had an opening ceremony, which was attended by the Honorable Commissioner of Agriculture and Forestry, Kaduna State, Dr Manzo Daniel Maigari who was represented by the Permanent Secretary, Dr M.

Kassim. Also present at the opening ceremony were the Program Manager, Kaduna State Agricultural Development Program (KADP), Mal Ashafa Dauda; the President of the Maize Association of Nigeria (MAAN), Mr Tunji Adenola; the President of the Seed Entrepreneurs Development Association of Nigeria (SEEDAN), Mr Richard Olafare; and Mr John Onyisi Onyibe, the Managing Director of Goldagric Nigeria Limited, Kaduna.

The second session was an interactive lecture given by the lead resource person, Dr Amare Tegbaru assisted by Dr Halidy Gaya. This was followed by a brainstorming group session during which a tool was developed to conduct focus group discussions (FGDs) on gender norms within various communities. Later, all the participants were organized into three groups, and each group developed and presented the tool they intended to use for their FGDs. One group was to work on a women's group, another group would work on a men's group, and the third would work on a mixed group.

A field practical/analytical exercise on day 2 using the tools earlier developed to interact with the three stratified gender focus groups, formed the third session.

The field work was held some 250 km away from Kaduna in Taure, Samaru Kataf in Zango Kataf Local Government Area of Kaduna State located within the SARD-SC IP of Kaduna–Nasarawa states. The purpose of the visit was to identify the prevailing gender dynamics within the community. The results from each of the three FGDs were later analyzed to tease out the gender norms influencing both male and female decisions on what to grow. There was a special focus on the dynamics within the community that female farmers faced when accessing the three factors of production: land, labor, and capital.

The fourth and final session comprised the presentation of the three FGD group reports. From the findings, an action plan was developed to support the efforts of women in the community to produce more green maize, an enterprise that was identified as the focus of the female farmers.

The lecture and discussion guide used by the lead resource person and the FDG discussion reports were then circulated among the workshop participants.



Gender workshop participants.

The workshop ended with a range of feedback comments from participants during a wrap-up session.

Some of the findings from the field exercise

- Men grow white maize for food while women grow yellow maize for green cobs which they sell for cash.
- Men often have an overriding say on what crop is grown on family land.
- Renting of land is increasingly becoming common especially among women.
- Fertilizer use is rare due to limited availability, the perceived "high cost", and adulterated supplies potentially sourced from village markets.
- The stem borer is a significant pest.
- For food, flint kernels with high flour yield are preferred while bold dent kernels are desired for sale.
- Local thrift and savings exist for women groups.
- The role of soybean in maize systems needs to be explained to improve adoption.
- Farmers showed an interest in multiple cropping especially for green yellow maize production/marketing (skills for this needs to be enhanced).
- Linkages with input and output

markets including credit needs to be strengthened.

- Record keeping, business skills, and cooperative and group management skills need to be strengthened.

Consequently, a harmonized plan of action was developed.

- Harmonized action plan targeting women
- Create demand through the establishment of demonstration plots especially for women using best practices and desirable varieties.
- Promote access to improved seeds and other inputs and link farmers to tractor services.
- Promote the formation of cooperative societies for easy linkage to credit and markets.
- Enhance the capacity of agrodealers to complement extension services of the ADP.
- Encourage the creation of a PPP - Public (ADP) Private (seed companies, agrodealers) Partnership platform for sustainability.

The project also held a similar gender workshop at Kumasi in Ghana, 15–16 September and in Monze, Zambia from 25 to 28 September 2016. Below is a summary (Table) of the findings from Monze in Zambia and events planned to address the problem.

Identified problem	Solution	Indicator	Target group	Expected outcome
Access to credit facilities	Sensitization meetings on available credit facilities Linking farmers to lending Institutions	No. of farmers accessing credit facilities	Men, women, and youth	Increased yields and households incomes
Use of counterfeit seed	Sensitization of farmers on importance of certified seed	No. of farmers using certified seed	Men, women, and youth	Increased crop yields
Low female participation in demos, field days, and trainings	Training farmers in HH approach	No. of farmers	Smallholder farmers	Increased female participation in activities

Maize value chain dialogues with Development Finance Department (DFD) of Central Bank of Nigeria

It is noted that over 98% of the farmers at project sites are small-scale farmers, cultivating less than 2–3 hectares annually and engaged in various combinations of crop enterprises. While maize is predominant in the adopted enterprises, each year, farmers decide what proportion of their land to devote to it depending on availability of fertilizers and other inputs such as pesticides especially herbicides for weed control, improved seeds, and storage space. The other constraints include lack of access to dependable markets and competitive prices for their maize grains.

Under the SARD-SC Project, these constraints are being systematically addressed by identifying and linking stakeholders along the value chain. These linkages enhance farmers' productivity while empowering the various farmer groups to negotiate competitive prices for their produce. One of the strategies that is enhancing farmers' use of improved inputs is facilitating their access to finance. Access to finance will enable farmers under the SARD-SC Project to purchase quality inputs in sufficient quantities.

Additionally, a linkage to output market capable of absorbing increased yields is also essential. Strengthening the Maize Association of Nigeria (MAAN) is also part of the program's exit strategy. Consequently, the Project continued to create platforms to forge partnerships between maize farmers (as represented by MAAN) and several financial institutions and off-takers in a tripartite fashion that will enable farmers to negotiate favorable terms for the purchase of inputs and sale of the produce. In this report, highlights of the meeting held at the Boardroom of the Development Finance Department of the Central Bank of Nigeria (CBN) on 1 July 2016 that was facilitated by the Project to enable members of MAAN to directly engage officials of both the FCMB Bank and Central Bank of Nigeria (CBN) in discussing their financial needs, are presented below.

The SARD-SC Project provided guidance



One of the representatives of MAAN (in black cap) and the Director of DFD, CBN during the dialogue.



Some of the key officers of DFD, CBN during the dialogues

on working with MAAN and SEEDAN (Seed Entrepreneurs Development Association of Nigeria) that enabled the FCMB Bank to develop a financial product "fit-for-purpose" for targeted farmers growing maize in Nigeria. The financial scheme was discussed extensively and reviewed with stakeholders and eventually adopted for use by members of MAAN and SEEDAN. Based on this, farmers worked with selected aggregators to come up with their equity contribution required for the purchase of inputs through respective aggregators. These aggregators made contributions of their own and were assessed by the banks' risk department on the collateral they presented. In one of the states, (Zamfara State) farmers contributed over thirty million naira (> N30,000.000) as their own equity contribution towards securing a loan and deposited the money into accounts earmarked for the facility in FCMB Bank.

Persuaded by the efforts made by the farmers, FCMB made a tentative offer and issued Transaction Dynamics (TD) indicating terms of the facility. Although the FCMB Product was unique, discrepancies

were spotted between the financial product it developed and the terms of the TD. In seeking clarification on the discrepancies, it was realized that the TD had key elements of the CBN Anchor Borrowers Scheme for rice and wheat that were not applicable for the initial financial facility developed by FCMB.

The involvement of the Federal Government of Nigeria (FGN) through the CBN provided a more competitive interest rate of 9% as opposed to the 12-13% originally negotiated with FCMB and NISRAL. FCMB then shifted its focus by entering into negotiations with the CBN to access the anchor borrower and Commercial Agricultural Credit (CAC) schemes. The anchor borrower model insisted on by the bank required farmers to make a 5% equity contribution, and wanted to link farmers directly to the off-taker as the obligor. The original FCMB-IITA-MAAN negotiated anchor borrower scheme relied on higher farmer contributions (as much as 30%) in addition to a top-up contribution made by the aggregator acting as the obligor, thus considerably reducing the bank's risk exposure.



Project maize farm.

Unlike rice and wheat, maize does not have to rely on a processor for its output market, so there is no need for the off-taker/processor to act as the obligor. Given the waning interest being shown by farmers for the original scheme a meeting was set up with the CBN, MAAN, and IITA to discuss potential modifications to the scheme, that would bring us closer to the initial scheme in which the farmers' equity contribution would act as an incentive to ensure they applied themselves appropriately. In addition, a higher equity contribution would give them more leverage when negotiating prices for their grain. The meeting was chaired by the Director of Development Finance Department (DFD), Dr M.A. Olaitan. The Director started the meeting by requesting that IITA (SARD-SC) provide an overview of what they were proposing with regards the modifications to the anchor borrower scheme. In particular, to seek clarification/waiver on:

- Whether or not MAAN can serve as a cooperative/obligor since it has been legally registered.
- Whether the accounts and equity contributions of 20% by farmers and 30% by Aggregators was in order for accessing the credit under the Anchor Borrowers Scheme.
- What needs to be done to accelerate the process of securing the credit.



Mr. Adenola, President of MAAN at the workshop.

These issues were extensively discussed and all in attendance came away with an improved understanding on how to proceed with the quest for credit to support maize businesses in Nigeria under the various facilities. Some of the financial products according to the Director (DFD) such as the ABP and Commercial Agricultural Credit Scheme

(CACS) are strategic policy initiatives to encourage rural banking and cashless transactions. The interest rate for both the ABP and CACS is 9%. The dialogue therefore opened a new vista which the Project will collaboratively explore with partner commercial banks to support businesses on the Maize Value Chain (MVC) in Nigeria.



Dr Sam Ajala, (middle) with project staff.



Rice Value Chain

Local rice business thrives through GEM facility installation in Lafia innovation platform

rice consuming households and contribute to raising incomes of women and employment opportunities for youth in the rural economy. Significant changes have been observed in Nasarawa as a result of the GEM installation and training; improved quality of parboiled local rice, increased incomes, job creation, positive mind-set towards collective action, and improved well-being of rice parboilers who are members of the IPs.

At the IP management level, since the inception of the training, 36,075 kg of paddy was parboiled using GEM technology out of which 23,575 kg of milled parboiled rice was recovered. 5,522 kg (out of the 23,575 kg) was from seven (7) individual IP members and 18 parboiler groups, while the remaining 18,053 kg was processed for the entire IP and sold. The quality parboiled rice is already attracting consumers within and outside the community of Lafia. A total of 249 customers bought IP rice for consumption while 50 bought for trading. The IP received customers from 9 states including Nassarawa (228 for consumption and 35 for trading); Plateau (8 for consumption and 2 for trading); Taraba (1 for trading and 1 for consumption); Kogi (2 for consumption); Edo (2 for trading), FCT (4 for trading and 5 for consumption); Lagos (3 for trading and 1 for consumption) and Benue (1 for trading and 2 for consumption). The local rice parboiled using the GEM had better quality compared to traditional methods and the selling price also increased.

AfricaRice/SARD-SC project in collaboration with NCRI (research) and extension (NADP) identified and installed energy efficient GEM rice parboiling technologies and innovations in the Lafia innovation platform (IP). Lafia is located in the rainfed lowland ecology in Nassarawa state, Nigeria. The introduction of the GEM was combined with training of IP actors in the rice value chain on efficient use and management of the GEM facility. A total of about 1,215 rice parboilers, including 915 women and 300 men, were trained on processing and value addition of locally produced rice. As part of the IP process, the capacity of 37 youth's group has been developed in rice processing and value addition as well as operation of equipment and farming tools. The Lafia IP also received a milling machine and other farming equipment from AfricaRice through the Japan Emergency Rice Initiative.

29 October 2016 and was attended by the IITA/ SARD-SC Coordinator - Dr Chrys Akem and AfricaRice representative in Nigeria Dr Francis Nwilene. Dr Akem remarked that in general, the SARD-SC project has faced challenges in effectively addressing gender equity – active involvement of women in project activities. The deployment of the GEM rice parboiler in the Lafia IP has fully demonstrated that coupling gender sensitive technological and institutional change, and can significantly impact gender mainstreaming in agricultural productivity programs and projects. The representative of the Emir of Lafia emphasized the strong support and commitment from local authorities.

To date, over 1,200 women households have been reached through the GEM technology and innovations in the IPs in Nigeria. The GEM is being rolled out in combination with enhanced packaging and branding of locally produced rice to attract urban and niche market



Dr Chrys Akem

Dr Francis Nwilene

The formal launch of the Lafia IP took place on

The chairman of the Lafia IP - Mr. Jonathan - expressed the satisfaction of the parboiler groups by saying:

We enjoy the GEM facility and the new methods to process rice. With the installation of the GEM facility combined with the training on use



Mr Jonathan speaking at the launch of Lafia IP.

of the GEM, our members have changed their mind set in rice processing and adopted good processing practices. Some of them partially adopted the technology by using the GEM socking/steaming vessels. The quality of local rice produced with the GEM is so good that people call it AfricaRice in our local market at Lafia (Nassarawa state). The selling price also increased. Before, the average selling price of traditional parboiled rice was 225 Naira/kg. Now with the new methods (GEM), the average selling price is 325 Naira/kg. People are surprised about the quality of the rice produced with GEM. Currently, the demand to process rice with the GEM in our IP facility is increasing day by day. Our customers pay 1,500 Naira for the services: 1,000 naira for parboiling and 500 naira for milling for 100 kg. Furthermore, we engage at least 6 IP members to whom we pay 500 naira per day. More people are becoming interested in our local rice and the demand is high. Also, there is a high demand for training on the use of GEM from other rice parboilers around the IP. We thank AfricaRice for this initiative and wish to help to duplicate the GEM in other zones in the IP. Thanks to AfricaRice/SARD-SC”.

Furthermore, the training on use of GEM started to have significant changes at individual household level in Lafia IP.

Madame Marta Shagar from women parboiler group named Ayimon based in Lafia IP, Lambaga village report:

I was selected and participated in the training on processing and value addition of locally produced rice by using GEM technology organized by AfricaRice through SARD-SC project. I found the new methods and practices to process rice very useful and efficient than our traditional processing activities. After the training, I tried to reproduce the GEM facility for my rice parboiling activities, especially socking/steaming vessels and I use the new methods such as cleaning, soaking, drying etc. By using the new GEM methods and practices, the quality of my rice is better than before and the profit also increased. With the new technology, I got a profit of 20,000 Naira/bag of 120 kg. But before, I got a profit of

2,000 - 3,000 Naira/bag of 120 kg. I also trained 15 women who work with me on the use of this new technology in my location. Before, I worked with 3 persons and now I engages 3 more persons. After processing the rice in my house, I hire a car and bring the product into the Lafia IP GEM milling machine. Now after parboiling the rice, people get it quickly. We now know that a good paddy is necessary to get good parboiled rice. So, we women parboilers try to sensitize our husbands or other farmers to use an improved rice seed. To be honest, in this short time, from the training up to day, with my profit, I bought a farm land and I started to build house in Lafia, Thanks to AfricaRice/ SARD-SC".

To be honest, in this short time, from the training up to date, with my profit, I bought a farmland and I started to build house in Lafia, Thanks to AfricaRice/ SARD-SC".



Marta Shagar parboiling rice.

Umar Usman is a man rice parboiler. He is member of parboiled group named Alheri. His job is to process rice to people as a service provider

He reported: I benefited from training organized by AfricaRice on use of GEM. As I process rice for other marketers, I decided to apply the new practices, because of the quality we get with the new methods/practices. With the new methods, I can process 36 tons of paddy rice/month while before I processed about 21 tons/month. Also, I added 5 more employees and I have 17 persons that are working with me now. Sometimes, if the demand is enough, I call other IP member

to come and support me. I pay the workers about 350 Naira per day. Before with the traditional processing methods/practices, my customers paid 2,700 Naira for 1 bag of 120kg, but now they pay 4,200 Naira/bag of 120 kg due to the quality of rice. To be honest, the demand to process rice from my customers is higher than before because, the quality is better. I am happy now that I get more money and I can satisfy my needs. I thank AfricaRice/ SARD-SC"

With the new methods, I can process 36 tons of paddy rice/month while before I processed about 21 tons/month. Also, I added 5 more employees and I have 17 persons that are working with me now.

Youth employment through promotion of ASI thresher in Kano IP

AfricaRice/ SARD-SC organized in June 2016, a training for youth on use and maintenance of ASI thresher and business plan development. The main objective was to promote ASI thresher, reduce post-harvest losses and at the same time engage rural youth in business as a service provider and create jobs in rural areas. Youth from Dawakin Kudu IP who attended the training benefited from one small thresher from SARD-SC. They have organized themselves to do business as service providers to improve their well-being.

The youth group reported: We benefited from training on use of ASI thresher, maintenance and business plan development and also at the end of the training, we received a small thresher from AfricaRice. When we came back in the IP, we organized ourselves in order to start threshing during the rice harvesting period. We are 5 young boys including a local artisan. During October 2016, we threshed about 1,02 tons of paddy and gained about 71,250 Naira. For 1 bag of 100kg, our customer pays an amount of

550 Naira. We are very happy because, we are doing business through this equipment and we have a little bit money in our pocket. We make a profit and we save money to repair the machine as we plan to buy another one in the future. When people observe the operations of the equipment, they are amazed and request for more information and express their willingness to purchase the thresher. Our perspective is to buy another small one to satisfy our farmers, because the demand is high but our capacity is small and we cannot satisfy everybody. We thank AfricaRice/ SARD-SC for this good initiative. We have a job for the harvesting period and we expect that this initiative will go on".

Furthermore, farmers expressed their willingness to purchase the equipment. Alhaji Umaru Muhammed, Manager Agri. Services, to whom the youth provide service with the ASI in the IP testifies: the equipment (threshing machine) is very efficient. We can get our paddy in one day and the grain losses are less than the manual/traditional threshing. I paid 550 Naira per 1 bag of 100kg. The ASI thresher

saves time and reduces grain losses. It is wonderful and I am planning to buy one myself".

“When people observe the operations of the equipment, they are amazed and request for more information and express their willingness to purchase the thresher”



Youth team using the small thresher as a service provider in Dawakin Kudu IP, Kano.

Promotion of rice-based technologies and innovations in the rice hub: Field day in Kano IP in Nigeria

AfricaRice in collaboration with national partners are promoting and out-scaling rice based technologies and innovation along the rice value chain to address the lack of improved technologies in African rice production, increase rice yield and income. Along these lines, AfricaRice/ SARD-SC in partnership with national extension service, KNARDA identified and introduced some key technologies and innovation such as Rice advice and ASI thresher through the IP in Kano state (North Nigeria). The main purpose is to address rice production scarcity through the use of RiceAdvice to increase the rice productivity and ASI thresher to reduce post-harvest losses. The promotion these technologies was carried out through the IP with significant involvement of youth to create jobs for the in the rural areas.

Since implementation of the rice IP and capacity strengthening of 5 LGA actors in Kano rice hub, the following activities have been conducted for the benefit of the stakeholders through the SARD-SC:

(i) training of fifty youth (50) including extension agents on business plan development, use and maintenance of the ASI threshers for service provision; (ii) donation of 6 ASI threshers to 28 youth (25 male and 3 female) in 5 LGAs (iii) training of sixty-eight youth (68) including extension agents on the use of efficient fertilizer management tool RiceAdvice for service provision to IP actors.

In order to enhance awareness of farmers on the availability and accessibility of these technologies, a farmer field day was organized in Rakauna village, Kura LGA, in Kano State. Over two hundred and fifty (250) participants, more than 60% IP farmers from Kura, Bunkure, Dawakin Kudu, Warawa, Garin Gallan and Kano, the youth service providers, IP officials and other rice value chain actors including extension (KNARDA and NAERLS), research (AfricaRice, NCRI and IAR), policy makers (district heads), in Kano and Nasarawa States Kano State attended the event. Some of

the remarks from field day participants include:

“The machine is not only a time saver, but also reduces rice grain losses. The chattering (noise) was not much and it was efficient. I also discovered that the machine is multi-crop and I can also use it in my soya bean farm. This is wonderful”: - El hadj Umar Mohamed, farmer in Kano state

“By using the recommendation of RiceAdvice, my rice yield increased by 40% to 50%. I’m very happy with the results as I can now use the extra money to take care of my family.”: Saliu K. Suleiman a RiceAdvice user - Farmer from Kura LGA (Kano state)

The event was published by a Nigerian newspaper, the Guardian (Sunday edition, October 30, 2016, vol 33, No13,820, page 48), or Consult on line : <http://guardian.ng/features/agro-care/africarice-moves-to-power-rice-farm-mechanisation-in-kano/>



Youth on the RiceAdvice demonstration plot in Rakauna village, Kano state.



Demonstration of use of ASI thresher by the youth during the field day in Rakauna.



Group photo of the youth and other participants.

Wheat Value Chain

Wheat component facilitates access to water and seeds in Mali

The SARD-SC Wheat project and its local partner, the Institute of Rural Agriculture with support from the African Development Bank (AfDB) are working in wheat seed production in Mali to ensure that improved varieties are made available to farmers in the shortest time possible. Through this support, the country has planted 31 ha of improved wheat seeds for the 2016 season in collaboration with farmers in the Office du Niger and Northern Region. The seeds were supplied from Nigeria through ICARDA. Further the institute conducted regional practical courses on seed systems, variety maintenance, and quality seed production targeting researchers, extension officers, and farmers.

Currently SARD-SC Wheat is conducting genetic improvements, variety maintenance, identification, and selection of the best bread wheat variety trials and verification in the Dire, Segou, and Kongoni regions. It has further conducted on-farm demonstrations and promotions to popularize the three wheat bread varieties (GOUMRIA-3, NORMAN, and REYNA 28) currently under consideration. Towards this end, the project and its partners organized a field day last year at N'Debougou village, in the zonal Office de Niger, Segou Region.

The purpose of this field day was to popularize wheat growing in Mali and to bring together stakeholders in the wheat value chain. The field day was attended by the Governor of Segou Region, Mr George Togo; Deputy of the National Assembly, Hon. Drissa Namogo;

Wheat in Mali

Access to inputs and seeds that could make wheat production profitable to farmers remains a major challenge to many African countries including Mali. Wheat production in the country has increased from 40,000 tons in 2012 to 44,000 tons in 2014 from just about 10,000 ha, barely producing a tenth of the country's annual consumption of 335,000 tons.



President of Mali and Prime Minister visit SARD-SC stand in Siagri.

the Director General of Research Dr Bourema Dembele; and the ministerial advisor representing the Minister. Also in attendance were research stations, learning institutions, the private sector, farmers, NGOs, and the country's Ministry of Agriculture as well as the media. Speaking during the field day, the Governor, Mr George Togo said that within the two major high potential areas, Office du Niger and the Niger River, the government is trying to create a conducive environment for

growing wheat by increasing access to and lowering the cost of getting water to the farms. The ministerial advisor and Director General Dr Bourema Dembele, while officially opening the field day encouraged all farmers in the dry areas to grow wheat in order to have food security for themselves and the country at large. The field day ended with a discussion session and meeting with the wheat farmers in the locality.

The country however has great potential of growing wheat in the coming few years over an area of around 405,000 ha, covering both the irrigated lands in the Office du Niger region, i.e., Segou, Gao, Timbuktu, and Kayes (340,000 ha) as well as "decrue" (water-receding land) regions in Timbuktu and Kayes (65,000 ha).

Currently there exist favorable policies and farmer empowering, pro-wheat growing initiatives including government-subsidized seed and fertilizers and an emergency initiative, the West Africa Agricultural Program and Productivity (WAAPP) in the northern regions of Mali.

Dreams of a smallholder wheat farmer in Tanzania

"My biggest dream is to one day buy a car from the proceeds of my wheat farm so that I can also drive my wife to the city like other rich people," says Jashon Mwanchazi, amid cheers of encouragement from fellow wheat farmers from Ulinji village, Rukwa Region in the Southern Highlands Zone of Tanzania some 504 kilometers from the capital Dodoma.

Jashon is one of the 74 wheat farmers from the Rukwa Innovation Platform of the SARD-SC Wheat project. He is one of the farmers currently participating in the on-farm demonstration of the newly released high yielding wheat varieties from the Agricultural Research Institute, ARI-Uyole. Jashon has been a wheat farmer since 2004 and he says that previously he used to get just 1.6 t/ha. However, two years ago his productivity began to rise due to support from the SARD-SC Wheat project. The support covered training on better agronomic practices and access to new high yielding wheat seeds. "Previously I used to practice traditional farming methods and that is why my yields were low," Jashon explains. "But that has changed, I plant new high yielding wheat varieties. In addition, I use fertilizers and also practice row planting and as a result I now harvest 15 bags per acre (6 tons per ha)," he adds. From the proceeds of his wheat farm, Jashon says he can now pay school fees for his children. He has other big plans though. He sees himself moving out of poverty completely in a few years' time, building a new house for his family, and even buying a car.

Jashon and his farmer group get frequent visits from curious farmers who want to join



Jashon Mwanchazi, wheat farmer.

the group after witnessing their increased harvests. This, he says, is the reason their farmer group has expanded from 21 farmers to the current 74. Jashon was interviewed on 24 May 2016 during a farmer's field visit led by Dr Rose Mongi, the Country Coordinator for the SARD-SC Wheat Project in Tanzania in the company of Dr Tolessa Debele from Ethiopia, Dr Solomon Assefa, SARD-SC Wheat Commodity Specialist, and Dr Zacharia Malley, Director ZDRD. In Rukwa, the project has over 600 farmers 35% of whom are female and are registered into two Innovation Platforms. Tanzania recently released three new high yielding wheat varieties for high rainfall environments. The varieties have a potential for between 4.9 and 5.8 t/ha under on farm trials and seed

multiplication, respectively.

Wheat is the third most important crop after rice and maize in Tanzania. The country's wheat imports bill is currently \$225 million USD per year (USDA, March 2016). The current annual production of 110,000 tons accounts for only 11 percent of total domestic consumption and the deficit is offset by imports. Over 90 percent of wheat produced in Tanzania comes from the Northern Highlands (Arusha, Kilimanjaro, and Manyara regions) and the Southern Highlands (Iringa, Mbeya regions). Production in the Southern Highlands is predominantly small scale and large scale in the Northern Highlands. Approximately 100,000 ha are currently devoted to wheat production.

Sudanese government continues to support SARD-SC wheat seed production for dissemination

As a continuation of his support to wheat production in Sudan, His Excellency the Federal Minister of Agriculture and Forestry Mr Ibrahim Adam Ahmed Al-Dekhairi attended a seed wheat harvest day coordinated by the SARD-SC Wheat project and its local partner, the Agricultural Research Corporation, ARC Sudan at Elbasatna in the Gezira region. A total of 35 hectares of seed wheat fields, planted by farmers in the Elbasatna Innovation Platform were harvested.

A key factor to wide adoption of the newly released, high-yielding, heat-tolerant varieties is an effective seed system that makes seed available to farmers in a timely manner and at an affordable price. This seed system, combining the public, private, and community sectors, is the most effective system and the harvest of community-based seed multiplication sets an enviable example.

This harvest day was attended by



Sudanese minister of agriculture and top functionaries attending project seed harvest day.

His Excellency the State Minister of Agriculture in Gezira State, M.Y. Ali; the Undersecretary of the Ministry of Agriculture and Forestry, the Governor of Gezira Scheme, the DG of ARC Sudan, and more than 200 farmers and officials and was extensively covered by the media. The Federal Minister restated the commitment of the government to support wheat production through timely provision of credit and inputs and paying a profitable price to all farmers who handed their produce to the Agricultural Bank of Sudan. His Excellency the State Minister of Agriculture confirmed the Ministry support to the wheat production in the Gezira Scheme, saying that his ministry had seconded more than

50 extensionists to the scheme. He also emphasized the importance of collaborative efforts of all stakeholders to reduce wheat imports and eventually become self-sufficient in wheat.

The SARD-SC Wheat Project Coordinator Dr Solomon Assefa praised the commitment of the Sudan Government and all stakeholders towards local wheat production and added that seed harvested from the 35 hectares is a significant contribution to seed supply for next season. The wheat seed harvest day took place on the 22 March 2016.

The Sudan wheat seed setup for wheat seed production has been critically reviewed by a SARD-SC wheat consultant.

His report recognizes the high cost of seed production that cannot be covered by a high seed selling price as is the case for hybrid crops. This implies a need for government support, especially for equipping and staffing a national seed center for the production of breeder seed and the need for devolving wheat seed production and supply to community and local institutions, with some limited government support to enable quick access by farmers.

The Sudan Government has a clear price agreement of 400 pounds (USD 66) per 100 kg sack of wheat as a directive of the President of the Republic. In 2015 the country cut subsidies on imported wheat to boost local production.

Sabina Nyahuye declared the best female wheat farmer in Zimbabwe

When Sabina Nyahuye, a wheat farmer from the Hwedza Innovation Platform of the SARD-SC Wheat project, started wheat farming twenty years ago, she says wheat harvests and market were just okay. However, after years of farming the crop on her two hectare piece of land, yields began to drop.

“I almost gave up wheat farming in 2009 when challenges became too many,” says Sabina. Access to seed, and other inputs and poor agronomic practices were some of the main challenges she was facing. “I reduced my wheat farm from 2 ha to just 0.2 ha and in fact I know of many people from my village who gave up entirely,” she adds. Sabina’s farm is in Hwedza District, in the province of Mashonaland, 130 kilometers south of Harare, Zimbabwe.

Three years ago (in 2013) the SARD-SC Wheat team in Zimbabwe, working with the country’s Department of Research and Specialist Services DR&SS in the Ministry of Agriculture, Mechanization and Irrigation Development, visited Sabina’s home area and shared with the local leaders their vision on how they



Sabina is being honored by the country’s top dignitaries in the ministry of agriculture.

could revive wheat farming. Once the local leadership accepted their proposal, they established demonstration sites for various wheat varieties and farming practices in schemes across the District. Sabina and several farmers in the area were trained on best practices of wheat production techniques. They were taught proper watering, soil nutrient management by rotation with legumes, proper land preparation (combining tractor with oxen plough), and proper seed spacing. The farmers were given an opportunity to evaluate for themselves the performance of varieties in the demonstration farms and after that got farm inputs to try the varieties and practices on their farms. With this knowledge and new varieties and inputs, Sabina’s wheat production

has increased dramatically. “By 2014 my output had doubled from 2 t/ha to 4.2 t/ha and by 2016 had risen further to 8 tons and that is why I was declared the best female wheat farmer in Zimbabwe,” explains Sabina. As a result, Sabina was one of the smallholder wheat farmers given fertilizers and other farm inputs by the country’s Permanent Secretary for Agriculture, Mechanization and Irrigation Development Hon. Ringson J. Chitsiko, recently, for their achievement.

Sabina sells her wheat produce for US\$15 for a 20-kg bag. She sells wheat to her neighbors and in the local market. Sabina plans to expand production of wheat. Her success is slowly influencing other farmers in Hwedza to return to wheat farming.



Sabina Nyahuye.

Two wheat scientists graduate through full scholarship from the SARD-SC Wheat project

In August and September 2016, two students, Mala Kachalla from Nigeria and Bruce Mutari from Zimbabwe, respectively graduated with a Masters after successful studies funded by the SARD-SC wheat project. The AfDB funded SARD-SC wheat project of ICARDA runs a scholarship program to build the capacity of African researchers in various segments of the wheat sector. The project has offered a full scholarship to nine wheat scientists from six African countries to pursue their PhD or Masters studies on wheat in the fields of breeding, seed production, agronomy, and disease and pest management, among others. The scientists are undertaking their studies in various top level universities across Africa, backed by practical field experience and learning exchanges to other countries in the continent.

Mala Kachalla studied at the University of Maiduguri in northern Nigeria and specialized in “Screening of drought tolerant wheat lines in West African lowland environment and molecular marker analysis, using markers linked to IRS translocation, dwarfing genes and leaf rust resistance.” Through the support of the project, Mala Kachalla



Mala Kachalla (middle) a beneficiary.

attended a DNA molecular training in Morocco, Rabat.

“The major challenge that bedevils wheat production in West Africa is abiotic stress, particularly heat and drought,” explains Mala. “With the knowledge I have acquired in conventional and molecular breeding, I hope to support the wheat sector in my country to develop varieties that are tolerant to drought and heat stresses,” he adds.

Bruce Mutari, on the other hand, specialized in “Diversity studies and marker assisted improvement for rust resistance in wheat (*Triticum aestivum* L.) genotypes” from the University of Fort Hare (UFH), Alice, South Africa. Bruce is about to publish three papers, and one of them is on “Detection of rust resistance in selected Zimbabwean and ICARDA bred-wheat germplasm using conventional and molecular techniques”.

“Before my research, there was limited genotypic information on slow rusting leaf rust (Lr) and stem rust (Sr) resistance genes deployed in Zimbabwe,” says Bruce. “The knowledge generated through my study will assist plant breeders in selecting parents for use in future hybridization programs and design of multi-resistant cross combination cultivars with improved rust resistance,” adds Bruce.

This is important because in Zimbabwe, most of the old and present commercial wheat cultivars and promising breeding lines are susceptible to the current races of leaf and stem rust. Demand for wheat in Africa is rising as a result of increasing population, urbanization, and changing tastes, while productivity remains low due to abiotic (mainly heat and drought) and



Bruce Mutari.

biotic stresses (disease, insects, pests, and weeds). Through these scholarships, the project builds human capacity of the next generation of wheat scientists and researchers who will help the continent address challenges to wheat production and support countries to raise productivity, curb imports, and improve food security and livelihoods.

The scholarships are comprehensive and include a stipend, publication and research costs, tuition, travel, and insurance.

Government commits to support wheat farming, provide solar-powered water pumps to lower production costs

Niger: As a show of commitment to wheat farming in Niger and in recognition of the work of the AfDB funded SARD-SC wheat project of ICARDA, the Minister for Agriculture and Livestock for Niger Hon. Albade Abouba and his deputy Hon. Mohamed Boucha attended the opening and the closing of the 2015–2016 East and West Africa

Annual Review and Planning Meeting that was held in Niger in August 2016. Speaking at the opening of the event, the country's Deputy Minister for Agriculture and Livestock Hon. Mohamed Boucha confirmed that the goals and objectives of SARD-SC project of increasing wheat production to meet the growing local demand and providing income and

better nutrition, are in tandem with the National Strategy for Food Security and Rural Development for Niger as well as the new ambitious government initiative named 3N “Nigerien Nourish Nigerien”.

The Minister for Agriculture and Livestock Hon. Albade Abouba on his part said that his government will provide fertilizer

and solar water pumps to support wheat farmers in the north, the Agadaz region that borders the Sahara Desert, where the cost of diesel and water pumps has increased wheat production costs. Confirming that wheat is a strategic food security crop for Niger, the Minister expressed his support to research and extension in the wheat growing areas of the North (Agadaz region) and South (Konni and Tillabery). He also said his government will purchase all the wheat from the Konni region for the country's food aid package.

The Minister presented an award to ICARDA for its support to wheat production in the country. The Wheat Commodity Specialist and Coordinator Dr Solomon Assefa received the award on behalf of ICARDA. The Minister was accompanied by the Deputy Minister for Interior Hon. Alfari Saley, a member of parliament Hon. Rabi Souleymane and Dr Aboubakar Ichaou, DG for INRAN. INRAN is the local implementing partner for the SARD-SC Wheat project in Niger.

During this forum that was attended by top government officials and research and extension scientists from seven African countries, the project reviewed its achievements and key results from different countries. This included research trials conducted during



Nigerian minister for Agriculture and livestock presenting an award to SARD-SC Wheat coordinator.

the year, registration and release of varieties, quality assessment of wheat, seed multiplication efforts, scaling up and promotion of proven wheat technologies across the IP sites, farmer field days, results from socioeconomic impact and gender surveys, and a study on the cost of production and gross margin of wheat compared to tomato, rice, and onions in Nigeria. An important side attraction was the award given the two best wheat producers in Niger, Mr Ousmane Amadou and Mr Adamou Abdou in recognition for their great field management.

Dr Solomon Assefa shared plans for the upcoming Technology for African Agricultural Transformation, TAAT which is part of the AfDB Feed Africa vision 2025. The new TAAT project commences in 2017 and targets 20 countries. The project aims to scale up proven wheat technologies and innovations, gender transformation for realizing a transformative impact on food production, market access, and increased income and greater value from wheat.

With ready market, better seed and other inputs, farmers are now increasing wheat production

Nigeria: "Previously I used to cultivate 0.5 ha, last year however, I increased it to 2 ha and got 76 (100 kg) bags of the high yielding Norman variety, part of which I sold for N23,000 (USD 58) per bag and got N1.35 million (USD 3,463), one of my best incomes in recent years," explains Alhassan Abdullahi. "I added this money to what I got the previous seasons and bought 2 ha of land which I will now use to expand my farming ventures," he adds. Alhassan Abdullahi, a farmer from Kano State, Nigeria is a member of the Kadawa Innovation Platform of the AfDB funded SARD-SC Wheat project of ICARDA. Activities of the platform are coordinated by the Lake Chad Research Institute and the Institute of Agricultural Research at the Ahmadu Bello University, Zaria.

Alhassan has grown wheat since 1984 when he was in secondary school. He says he was able to increase wheat acreage and also got good price because of guaranteed

market under an offtake program with the Millers Association of Nigeria that was negotiated with the support of SARD-SC, the agriculture ministries in the wheat growing states of Nigeria, the Federal Ministry of Agriculture, the Millers Association of Nigeria, the Wheat Farmers Association, the Central Bank of Nigeria, and the Governors of Kano and Kebbi states. This was coupled with support to deploy better agronomic practices and new high yielding wheat varieties from the SARD-SC Wheat project. In the Kadawa region of Kano State, there are 40 farmer clusters each comprising 20–25 farmers.

Alhassan is a representative of a cluster of 22 wheat farmers and the wheat in his store was certified wheat seed that was being distributed to his cluster for the planting season that began on 11 November 2016. His cluster got the wheat seed through an anchor borrowing program for seed, fertilizer, chemicals, and water pumps

funded by the Central Bank of Nigeria and the farmers will repay in cash or in kind through their grain produce after harvest. With certified seed and training on best farm practices and inputs, Alhassan increased both his production and productivity, from planting 0.5 ha which gave him just 8 bags to 2 ha that gave him 76 bags. And with ready market he says he intends to increase production even more.



Alhassan Abdullahi, wheat farmer from Kano.