

N2Africa Podcaster no. 49

Special Issue: Exit strategies Tier 1 countries and post project continuation

December 2017

Introduction

N2Africa is a large scale, science-based “research-in-development” project funded by The Bill and Melinda Gates Foundation and focused on putting nitrogen fixation to work for smallholder farmers growing legume crops in Africa. N2Africa aims to enhance productivity of grain legumes of smallholder farmers which in turn helps to increase income, improve household nutrition, and enhance soil fertility. The vision of success is to build sustainable, long-term partnerships to enable African smallholder farmers to benefit from symbiotic N₂-fixation by grain legumes through effective production technologies, including improved seeds, inoculants and fertilizers, linking scientific knowledge with capacity building.

During the first phase of N2Africa (2009-2013), activities focused on research in relation to legume agronomy, cropping system design and rhizobiology; and generated interest from the first generation of dissemination partners. The initial set of countries (e.g. Ghana, Nigeria, DR Congo, Rwanda, Kenya, Malawi, Mozambique, and Zimbabwe) covered a critical range of agro-ecologies with a variety of farming systems and priority legumes, providing an excellent framework for evaluating the diversity of legumes and their benefits. This resulted in proven technologies for scaling during the second phase of the project (2014-2018); that included additional countries, namely, Uganda, Tanzania and Ethiopia.

N2Africa has increasingly evolved from a direct implementation approach to being a catalytic and knowledge provider in its second phase. In DR Congo, Kenya, Rwanda, Malawi, Mozambique and Zimbabwe (termed Tier 1 Countries), N2Africa focused on disseminating Phase I products to partners for scaling as part of a gradual exit strategy,

institutionalized legume expertise within national systems, and shifted activities to other donors and private partners through co-funding.

To ensure sustainability of the project results, an exit strategy was an integral part of the project design and implementation. Three areas were identified as key to achieve sustainability of results after the project ends: 1) to ensure sustainable input supply, this means smallholder farmers have access to quality inoculants, seed of improved varieties, and fertilizers that are required to produce legume crops. 2) to ensure that activities to enhance production and productivity of legume crops are fully integrated into specific country national structures and 3) at the end of the current phase of the project N2Africa will become a Pan-African information sharing platform. N2Africa activities will continue with full funding in the Core Countries (Ethiopia, Ghana, Nigeria, Tanzania and Uganda) throughout 2018.

Through its catalytic role, N2Africa partnered with several organizations (research, regulatory, development partners, and private sector): partnerships that deliver the intended results at scale. To this end, each of the countries collaborated with varied partners to ensure the integration and implementation of interventions which are key to sustainability and will guarantee smooth exiting, as outlined in country reports below. Throughout the years, each country has achieved various levels of success towards the sustenance of results. Smallholder farmers are guaranteed access to key technologies such as inoculants, seeds and fertilizers through private sector partners who mostly were part of the various partnerships. National systems have obtained capacity and mainstreamed activities into national plans to continue dissemination and adaptation of technologies.

No doubt, this has been a journey, identifying the right partners to collaborate and support the interventions, getting the commitment – especially of the private sector – to invest in the production and provide continuous access to the technologies, having the national systems to mainstream the key technologies and methods in their structures. In this Podcaster we outline the exit strategies of each of the Tier 1 countries. These are summaries of longer reports that can be downloaded from the N2Africa website through the links provided. We hope you share our pride in the results achieved and look forward to your feedback. In the end, the successes seen in the countries are the results of partners’ contributions and commitment.

Theresa Ampadu-Boakye (M & E Specialist) and Fred Kanampiu (Project Coordinator)



Field visit DR Congo (Credit: J.M. Sanginga)

N2Africa DRC exit and continuation by partners

The DRC is the third largest country in Africa after Sudan and Algeria. It stretches from the Atlantic to the East African Rift plateau. It includes the major part of the Congo River basin. Crossed by the equator, it has a warm and humid climate in the region of the river basin, and a drier and cooler climate in the south. The DRC counts 64 million inhabitants.

N2Africa works in two out of the twenty-six provinces in DRC: North and South Kivu. In total the project covers twenty-six action sites across various agro-ecological zones: mountains and valleys with large differences in soil types – from highly weathered, nutrient depleted clays to extremely fertile slopes of recent volcanic origin susceptible to extreme erosion.

N2Africa's exit strategies in DRC are centered around the soya value chain through the following initiatives:

Initiative 1

The focus in this initiative is to further collaboration with youth agripreneurs such as the IKYA/UPSKI and small soyabean producers. These partners are grouped and linked to big processing plants such as Centre Olame and Maizeking in South and North. Centre Olame and Maizeking provide the farmers with good-quality seed, ensuring a good-quality soyabean product to process.



Youth agripreneurs visit the Centre Olame soya processing plant!

Initiative 2

Four youth organizations active in the soya agribusiness decided to build a consortium: the Youth Agripreneurs Soya Value Chain. This collaboration will strengthen soyabean production and processing. Each organization brings something different to the table:

- **CYED** (Corporation for Youth Emancipation and Development) is a group of young entrepreneurs dealing with

the processing of soyabean into soyabean oil.

- **UPSKI** (Union des Producteurs de Soja au Kivu) collects soyabean from different soyabean farmers and delivers the produce to processing plants.
- **V-GRACE** (Vijana- Groupe de Réflexion et d'Action pour un Congo Émergeant) deals with the breeding and sale of eggs and chickens. Side products from soyabean processing to oil or milk are an important component of chicken feed.
- **IKYA** is involved in the production, processing and sale of soyabean products.



IKYA/UPSKI visit the soya processing facilities at the Centre Olame, Bukavu DRC

Initiative 3

A sustainable input supply for soyabean will be ensured as follows:

1. Farmer groups will continue to sell in their shops small-quantity input packages of 1 to 5 kg. For instance farmer groups IA Zuki (in Nduba) and Rusimane (in Miti) sell packages with 3 kg of soyabean seed and 2 kg NPK fertilizer and 10 g inoculant.
2. Private-sector seed companies AGRIFORCE and Shalom, and bio-fertilizer company LOBIKO are gathered in local business networks to bring the sellers closer to farmers. New small input shops were set up so that inputs are available to every farmer group.

N2Africa facilitated in the soya value chain mainly by linking soyabean farmers together and through capacity building on the topic of market access and marketing. A strong network will ensure continuity.

The N2Africa Project DRC Exit Strategy report is available [here](#).

Jeanmarie Sanginga, Country Coordinator DRCi

Partner PAD and N2Africa

PAD (Programme d'Appui au Developpement Durable) is a Congolese NGO that was established in 2001. It is based in Bukavu in the eastern part of the Democratic republic of Congo (DRC). PAD has a professional staff specialized in rural areas, dissemination of innovative agricultural technologies, and cooperative movement. Globally, PAD aims for sustainable improvement of the socio-economic status of rural populations in eastern DRC.

PAD is a major partner of N2Africa since Phase I and II (2009-2017) in the dissemination of technologies. Some of these members and farmer groups became food self-sufficient and produce soya for their business.

PAD was also a partner in the DFID/ESRC projects led by the social economist team of Wageningen University. Organizations like TETRATECH rely on PAD's expertise to conduct their work in the soy value chain.

Fifteen years of intensive work on rural sensitization, agricultural extension and structuring farmers' organization have led to successful establishment of farmers' organizations. These organizations are focused on production but also on marketing. PAD's support occurs at two levels:



Mission USAID and Tetract in the PAD farmer group IA Luhiji/South Kivu, part of the soyabean value chain



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PAD farmer group exhibition at the 50th anniversary of IITA in June 2017 in Bukavu. The theme was youth agri-business, with visits from Mgr Maroy and Mrs Adolphine Muley, the Provincial Minister of Agriculture.

that of local farmers' organizations (20-25 households) at village level and that made of unions of local organizations called inter-associations.

Currently, PAD supports 32 inter-associations and between 10 and 15 local farmers' organizations. In total, PAD is accompanying 35.000 households that represent about 280.000 persons. Some of these farmer's organizations are now able to continue their activities independently.

PAD and these farmers' associations will continue the activities of N2Africa with regard to soyabean production, processing, setting up collective markets, soyabean seed multiplication and fertilizer sales.

Alain Muhigirwa: PAD coordinator, Dieudonne Chisibaji: agronomist

Kenya's N2Africa actions in 2017 and exit strategy

The final year of N2Africa in Kenya was committed to positioning for lasting project impact. These actions are illustrated through our accompanying 2017 project "scorecard". As Tier 1 operations are partner-led, household engagement and farmer training was largely conducted by others and loosely monitored using project M&E tools. A paradigm shift from community-based outreach to "last mile" agrodealer support was undertaken. This allowed for BNF product testing by customers and outreach via open houses. One of the great advantages to BNF technology promotion in Kenya is that inoculants, blended fertilizers and seeds of improved legume varieties

Kenya's N2Africa scorecard in 2017

Target	Achievement
Stakeholder roles assigned	31 stakeholders in 4 categories networked
Households engaged	3,434 households reached through 16 partners
Training conducted	30 local events train 468 persons
Agrodealers engaged	15 agrodealers networked
Inoculants mobilized	32,200 units distributed
Specialized fertilizers available	34 tons manufactured and distributed
Improved legume seed available	247 tons distributed (73% certified)
Products test marketed	3 BNF technologies by 179 customers
Legume grain marketed	125 tons worth \$65,000 collectively marketed
Legume grain processed	4.0 tons as 4 registered soy-based products
Women engaged	52% women across 12 participation categories
Women-led businesses established	4 women-led businesses in operation
Food baskets designed	4 soya-based products registered and branded
Inoculant quality assured	14 inoculant batches tested, avg. 4.1 x 10 ⁹ CFU/g
Elite rhizobia documented	3 elite strains documented in 3 countries
Exit strategy released	6 mechanisms identified, under review

are available as products from the private sector. N2Africa worked with stakeholders to ensure that these technologies were available to farmers through our agrodealer network and outreach partners. One emerging consequence of partner-led approaches is that reporting becomes voluntary and some activities (such as farmer participation and grain marketing and processing) are likely under-reported. Special care was taken, however, to directly organize the registration and branding of soya-based food products, and to monitor the participation of women across several project categories. Close collaboration continued with the University of Nairobi MIRCEN in all areas of rhizobiology. Efforts during 2017 led to the development of a project exit strategy that is currently under review.

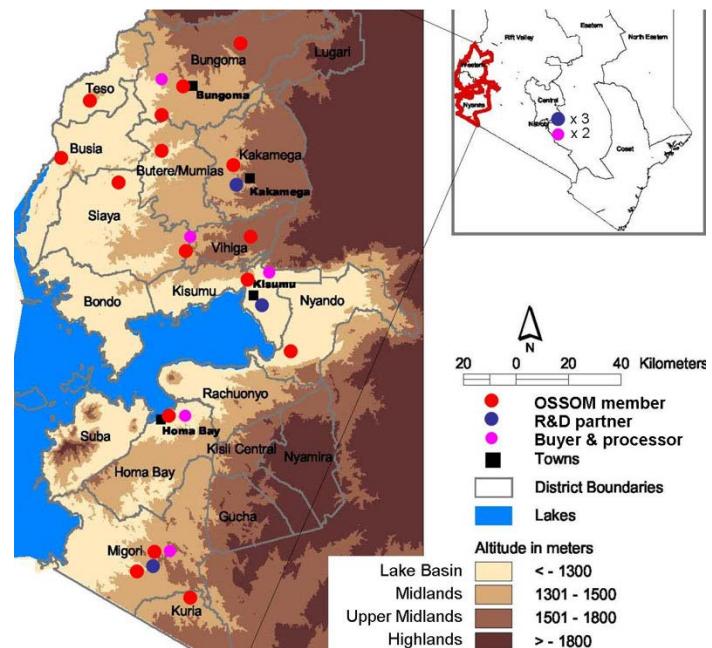
Kenya's N2Africa exit strategy is based on several intersecting goals. Input manufacturers and seed companies will continue to invest in legume production inputs, and expand their scope of operations, including greater incentives to "last mile" agrodealers. MIRCEN will continue to provide independent testing of biofertilizers and legume inoculants. Local agrodealers will continue to stock BNF technology products and find their trade as profitable as other product lines. The processing and diversity of legume-based products will continue and investment into localized grain legume marketing and processing will increase, and consumer acceptance of these legume products will grow. Three kinds of stakeholder partnerships established by N2Africa in Kenya shall continue: a) profitable input supply, b) profitable processing and trade in soyabean, and c) continued networking among stakeholders and extension service providers.

Profitable input supply

MEALTD will continue to manufacture BIOFIX legume inoculant and Sympal legume fertilizer, and to package these inputs into sizes appropriate for investment by small-scale farmers. Agriseed (SeedCo) Ltd will continue to produce and market soyabean seed that is suitable for different food and industrial purposes, and actively market them to small-scale farmers. Agriseed also distributes Bayer's RhizoLiq Top liquid inoculants. The Western Kenya soyabean Seed Growers for Community Seed Bulking will continue to assist in community-based seed production. County-level agricultural extension in key soyabean production areas will link with these input suppliers and distribution channels.

Profitable trade and processing

Marketing opportunities for grain legumes, particularly soyabean, will continue to expand, with much of the crop consumed in a way that improves human nutrition. Reliable buyers and processors of soyabean grain in west Kenya include Victoria Feeds (Kisumu), AWE (Luanda), GreenSpecs (Eldoret), Gesiche Feed (Nakuru), Kirinyaga Millers (Nairobi), Soy Afrique (Thika), and Equatorial Nuts (Nairobi). Women-led soyabean processing agribusi-



The West Kenya Action Site and exit strategy partners

nesses initiated through N2Africa, United Grain Masters and Christynet soyabean Enterprises will succeed and grow.

Technology dissemination partnership

During the final year of N2Africa in Kenya, our dissemination strategy focused upon the establishment of the One Stop Shop Operation Mechanism (OSSOM). This mechanism combined 15 "last mile" One Stop Shops that stock and sell legume production inputs as well as provide extension services for legume crop production. These shops were strategically linked to farmer associations and county extension services. Many of these shops not only market inputs, but also coordinate local commodity collection points and operate value-added processing facilities.

Recently, linkages to two R&D programs were forged. These include Kenya Industrial Research and Development Institute that established three accredited soyabean processing factories open to tenancy agreement, and the Kenya Agriculture and Livestock Research Organization (formerly known as KARI) that operates an accredited seed grower network, as well as conducts research on legume production. The latter program permits community-based organizations to produce accredited legume seed, a much-needed development.

The Deputy President's Office has established a soyabean Task Force to oversee commercial production of soyabean through County Governments. It was successfully piloted in Migori County through the Food to Markey Alliance with support of the World Food Programme and N2Africa. OSSOM serves as a member of that task force. The Ministry of Industrialization is providing services on soyabean

product development and offering common manufacturing facilities for commercial processing and packing of certified soya products by small businesses for a nominal fee. OSSOM members take advantage of this opportunity to produce a range of licensed, soya-based food products. One huge advantage in Kenya is that both BNF input manufacture and grain legume processing are fully commercialized, in part through eight years of N2Africa assistance,

and our exit strategy largely depends upon their continuation.

The [N2Africa Project Kenya Exit Strategy report is available here](#).

Paul L. Woomer, Welissa Mulei, Nancy K. Karanja and Josephine Ongoma, November 2017

MIRCEN will continue its rhizobiology services

The Microbial Resource Center (MIRCEN) was established at the University of Nairobi long before the N2Africa Project (1977) and will continue its work afterward. Our activities include testing legume inoculants and other bio-fertilizers, maintaining a small working culture collection of symbiotic micro-organisms and conducting training and research on soil microbiology. The past eight years that MIRCEN has worked closely with N2Africa have proven mutually beneficial. Scholarship opportunities were extended to Kenyans earning MSc and PhD degrees. The University of Nairobi also hosted graduate students from D.R. Congo. These students were actively involved in rhizobial bio-prospecting with 387 isolates recovered from Kenya and six identified as elite strains. We followed these strains through authentication, symbiotic effectiveness and competitive abilities in the dedicated greenhouse provided by N2Africa, and led in field testing them in three countries. Working with N2Africa resulted in better fulfilling our laboratory's obligation to test commercial inoculants and offer quality assurance to their distributors and customers. The drop plate procedures in use by our laboratory prior to N2Africa start-up were incorporated into its protocols and extended to other partner countries during Phase 1, and N2Africa laboratory technicians across Africa were trained in these methods in Nairobi at the onset of project activities.

We wonder what will happen with the critical mass in rhizobial microbiology developed over the past years. What will become of the N2Africa rhizobia culture collection being held in the different partner countries and consolidated only through development an electronic database? Will the best strains from different countries ever be compared? Will these same elite strains undergo thorough molecular description and speciation? Is there need for development of a grand catalogue for these elite strains for sharing with relevant laboratories and private inoculant producing industries? How will these proven and documented elite strains then be delivered to the private sector as described at the project's onset? It is important that the microbial resources gained through N2Africa are well preserved for use in enhancement of crop production and advances in rhizobiology research in SSA and globally. We also question why MIRCEN, that has provided so many services across N2Africa's past eight years, is now being cut from the project at the end of 2017 when the project itself will continue for another year to consolidate its gains. We state that MIRCEN is committed to work with N2Africa during 2018 to assist the project achieve its stated goals in advancing African rhizobia and rhizobiology in ways that may not occur otherwise!

Prof. Nancy K. Karanja, MIRCEN Director

OSSOM's awesome future

The One Stop Shop Operations Mechanism (OSSOM) was started in Kenya at the beginning of 2017 to better link "last mile" agrodealers to commercial manufacturers and distributors of BNF technologies. This move followed three year's reliance upon the Western Region Agricultural Technology Evaluation (WeRATE) as N2Africa's main outreach partner in west Kenya, an umbrella organization comprising 28 farmer associations. We realized that WeRATE was effective at conducting BNF technology tests and organizing farmer field days around them, but did not have the agribusiness orientation necessary to form lasting commercial linkages. OSSOM was formed from 15 WeRATE members that agreed to establish One Stop Shops as registered, year-round business entities dedicated to trade in legume technologies. Many of these businesses also deal in grain legumes and value addition. This shift in focus was



BNF technology demonstration at an OSSOM Customer Open House doable because all of the necessary ingredients to modern legume production (improved seed, specially-blended



A wide range of commercialized BNF technology products on display in Vihiga, west Kenya.

fertilizers and rhizobial inoculants) were fully commercialized in Kenya. Furthermore, input distributors were actively seeking local stockists to retail their products, and so too were buyers and processors of grain legumes looking for reliable suppliers.

Nevertheless, new perspectives were needed to ensure OSSOM's future. Locally-devised product demonstrations replaced formal technology tests. Customer Open Houses

replaced grassroots farmer field days. Sales logs and test marketing replaced household surveys. Some emerging retail operations were very conservative, marketing only those technologies provided through OSSOM contacts to their grassroots group members, but others seized their new business opportunities to diversify into fully operational agricultural suppliers offering a full range of seed, fertilizer, farming consultancy and pest control products. One early setback appeared when the Kenya Plant Health Inspection Service (KEPHIS) cited some One Stop Shops for not being certified agrodealers, but then KEPHIS and OSSOM worked with these same operators to become duly registered. Other product and service providers became attracted to OSSOM including extension agencies and credit facilities. Most recently, the Soybean Farm to Market Alliance, initiated by the World Food Program, is consolidating its activities around OSSOM members as it begins operations in six counties in west Kenya. Given this commercial and developmental momentum, we foresee OSSOM as an innovative product and service provider continuing into the future and for this reason it features so prominently into Kenya's N2Africa exit strategy.

Welissa Mulei and Josephine Ongoma, OSSOM Managers

N2Africa-Malawi: moving forward beyond 2017

N2Africa in Malawi started its work in 2010 and has been operating in seven administrative districts of Lilongwe, Dedza, Ntcheu, Salima, Dowa, Kasungu, Mchinji. It worked with partners such as (i) Government's Department of Agricultural Extension Services- District Agriculture Development Offices (DAES-DADOs) on technology dissemination (ii) World Vision (WV) on technology dissemination (iii) Catholic Relief Services (CRS) on technology dissemination (iv) National Smallholder Farmers association of Malawi (NASFAM) on technology dissemination and marketing (v) Agro-Input Suppliers Limited (AISL) on input supply and marketing (vi) Interchurch Organization for Development Cooperation/Churches Action in Relief and Development (ICCO/CARD) on technology dissemination, community seed production and output marketing.

So far over 30,000 farmers in Malawi have been reached with various legume technologies through demonstrations, field days, agriculture fairs, and training. Technologies being disseminated include use of inoculants (Nitrofix), the use of improved legume varieties, and the use of improved agronomic practices.

Since N2Africa will be phasing out in Malawi at the end of 2017, main partners that will continue disseminating activities are District Agriculture Development Offices (DADOs under DAES) of Dedza, Ntcheu, Salima, Dowa, Kasungu, and Mchinji. AISL stands out as the main player

on input supply and marketing, and cooperatives formed under ICCO/CARD are geared to continue engaging in community seed multiplication and collective output marketing.

Technology dissemination

Smallholder farmers under DAES-DADO will be the driving forces at grass-root level in the continuation of dissemination of technologies under the guidance of lead farmers and supervision of AEDCs/AEDOs. At a review and planning meeting held in November 2017 in Lilongwe, officers from these DADOs lined up activities such as mounting of demonstrations by lead farmers, conducting field days and facilitating exchange visits as some of the major highlights in the 2017/2018 season.



One of the N2Africa and Partners' Review and Planning Meetings

Achieving sustainable input supply

Through N2Africa's work in Malawi, a lot of awareness about the benefits of rhizobium and the use of inoculant was created among the farming community. However, the challenge was limited access to inoculants because of the small production capacity at DARS. N2Africa therefore lobbied for the private sector and agro-dealers as partners, to map a way to achieve a sustainable input supply. Partnership was therefore established between N2Africa and Agro-Input Suppliers Limited (AISL), a private sector firm, which took up the challenge to scale up the production of inoculant. N2Africa trained two technicians from AISL at the IITA Ibadan labs and the inoculants have been widely tested and proved to be effective in increasing soyabean yields in Malawi. In the previous 2016/2017 season, AISL sold more than 200,000 sachets of rhizobium inoculant in Malawi. It is expected that production in the current 2017/2018 will exceed 500,000 sachets of inoculant branded as Nitrofix reaching over 10000 farmers and covering over 7,000 hectares of land.

Community seed production and collective output marketing

Through the four cooperatives established under ICCO/CARD's watch and having built capacity of the cooperatives members, there are high chances of continuity of their



Demonstration plot-single row vs double row planting of groundnuts

activities in areas of soyabean production and collective output marketing. Farmers belonging to the seed production association intend to add value to their seed through packaging and branding. CARD aims to ensure that the cooperatives continue their activities by linking them to big agro-dealer companies such as Farmers World, Sunseed Oil Company and others.

The N2Africa Project Malawi Exit Strategy report is available [here](#).

Lloyd Phiphira, Country Coordinator Malawi

Strides in inoculant production and distribution in Malawi - the story of AISL

Prior to 2015, awareness of the advantages of soyabean inoculation was created among farmers in Malawi by N2Africa, but soyabean inoculant remained largely unavailable to farmers. Inoculant production was mostly limited to research (with only a few hundred sachets being sold to farmers) through the government's Department of Agriculture Research Services (DARS). This public institution was unable to scale its production to meet the inoculant demand.



This was the situation until 2015, when Agro-Input Suppliers Limited (AISL) stepped in to upscale and commercialize the production and distribution of inoculant branded as Nitrofix. DARS granted them authority.



Since 2015 with an initial production of 20,000 sachets from a temporary laboratory facility and 10 retail outlets, AISL has managed to increase production to 250,000 and 25 retail outlets by 2017. N2Africa provided technical support, provided training to two technicians at Ibadan's laboratory and facilitated the acquisition of elite rhizobium strains.

AISL constructed a permanent laboratory which will be fully equipped with necessary laboratory equipment for the production of inoculants. Expected production capacity at the new facility is 1 million sachets. Besides soyabean inoculant, the company started with the development



AISL Laboratory under construction in Kanengo Lilongwe. The expected completion date is January 2018 and ready for use in March 2018.

of inoculants for groundnuts and beans, together with the DARS.

AISL invested in the distribution chain by procuring 15 solar energy-driven coolers for proper storage of Nitrofix distributed in 15 of its outlets. Plans are underway to place more coolers in the remaining outlets.

N2Africa experiences: Mozambique

Towards the end the N2Africa project focused on scaling out the legume technologies proven under Phase I using a “business-led” approach. This involved engaging government, development organizations, and the private sector, creating awareness on N2Africa technologies and approaches, and facilitating dissemination campaigns. The project focused on soyabean and cowpea agronomy (sowing time, optimal planting density, advantage of improved over traditional varieties, response to fertilizer application, use of inoculants, postharvest handling), the input supply systems, and local capacity building for government extension officers, agrodealers, and individual community seed producers.

More than 25,000 smallholder farmers have been reached by directly hosting on-farm demonstration trials, Train the Trainer training, and field days in Manica, Tete, and Zambézia provinces. Using public-private-partnership approaches N2Africa disseminated four varieties of soyabean and two of cowpea. Market linkages were established between farmer associations and off-takers.

Better seeds is the foundation

Access to new seed varieties is a common and long-standing stumbling block for smallholder farmers in Mozambique. Working with seed companies, smallholder farmers associations and rural agro-dealers, N2Africa Project helped farmers in remote areas in evaluating the performance of soyabean and cowpeas varieties while building long term sustainable supply chains. In remote community of Angónia district, Maria Brigida Miguel Noé, is an emerging entrepreneur who has benefited from the N2Africa,



Maria Miguel Noe now provides seeds to her community. Photo credits Wilson Leonardo

Ultimately, AISL plans to grow and meet the domestic demand through improvements in the laboratory's production capacity and a larger number of outlets over the next 3 years. It will also seize opportunities to export its products to neighbouring Zambia, Mozambique, and Zimbabwe.

Fredrick Kawalewale, Chief Executive Officer for AISL

and is making progress in removing the stumbling blocks. Trained by N2Africa on good agricultural practices for soyabean production she is now commercializing seed for other fellow farmers. Initially she received 25 kg of soyabean from N2Africa. In subsequent seasons she bought the seed directly from agro-dealers located at Ulongue, the main village in the district or in neighbouring villages in Malawi. *“I decided to set up this business primarily to improve my life by selling seeds but also to help my fellows in the association. Seeing the demand for soyabean seed growing I decided to became the main seed provider in the village, by also growing other crops such as groundnut and maize.”*, Maria said, on her business.

Maria is already starting to see her hard work pay off and she is confident of a better future. *“With seed business I was able to build a new house, I successfully requested additional land (30 ha) and cattle. Next season when you will visit me you will be surprised with a vehicle that I am planning to buy. It is too expensive to rent a car locally to transport the produce,”* she said. Maria is one example of how N2Africa worked towards the Objective 3 of the project: **Empower Women to increase benefits from legume production.** (For more details see also the [ITA Newsletter story](#) highlighting the story of Maria Brigida Miguel Noé).

Support the local institutions to enable sustainability

While inoculants have proven to have high return on investments, inoculant quality is important as better seed to achieve good yields. To address the issue with inoculant quality control, N2Africa Project purchased and equipped an rhizobiology laboratory that was donated to IIAM, the main government research institution in Mozambique. Two newly recruited IIAM technicians will be trained and supported



by Dr. Amaral Chibeba at IITA-Mozambique on basic aspects of inoculant control. Amaral is a former N2Africa PhD awardee. The IIAM technicians will also be trained in Ibadan on rhizobiology with main focus on inoculant quality control and production. This training is planned for the month of December.

ACOF and N2Africa: the soyabean partnership

Agro Commercial Olinda Fondo (ACOF) is a woman-headed agribusiness company based in Mocuba District of Zambezia Province in Mozambique. ACOF produces and markets soyabeans and maize, selling mostly to the poultry industry. To supplement its own production, ACOF has an outgrower scheme involving **women smallholder farmer groups** in several districts: Dhere, Mocuba, Lugela, Maganja da Costa, Morrumbala, Gurue, Maua, Malema and Alto-Molocue. Ms Olinda Fondo, founder of ACOF, calls her outgrowers "my farmers". To facilitate production, ACOF provides the farmers with assistance on land preparation and a steady supply of certified seed and other inputs. In spite of this, farmers' returns on investment were low, mainly due to poor agronomic practices. ACOF and N2Africa focused on capacity building, addressing specific agronomic aspects (appropriate sowing time, optimal plant-



Wilson Leonardo showing a farmer how to thin a soyabean field for optimal density (photo credits Wilson Leonardo)

The N2Africa Project Mozambique Exit Strategy report is available [here](#).

Wilson Leonardo, Country Coordinator Mozambique



Wilson Leonardo from N2Africa showing farmers how to thin a soyabean field for optimal density (Photo credits Wilson Leonardo)

ing density, the benefits of using inoculants, post-harvesting handling, rotation sequence) to help farmers increase their soyabean productivity.

Ms Olinda sees big benefits from this partnership: "*In the past I would provide my farmers 100-120 kg of soyabean seed for one hectare of land. Now, because farmers are planting at optimal density, the same quantity of seed is sufficient for two hectares. This allows us to save seed and reduce costs.*"

The partnership also facilitated the introduction of yield-enhancing Rhizobium inoculants. Ms Olinda adds: "*I want to thank N2Africa for bringing this new technology. Now that we are applying inoculants, yield has increased. Even our soyabean looks beautiful, with dark green leaves.*"

Ms Olinda is proud of the partnership with N2Africa. “*I want to thank God that N2Africa has crossed my path. The knowledge you provide to my farmers and to me are even more valuable than receiving money or inputs.*”

During the closing meeting with the N2Africa team, Ms Olinda promised to replicate GAPs with other farmer groups. The ACOF collaboration is a good example of sustainable partnerships established by N2Africa in Mozambique.

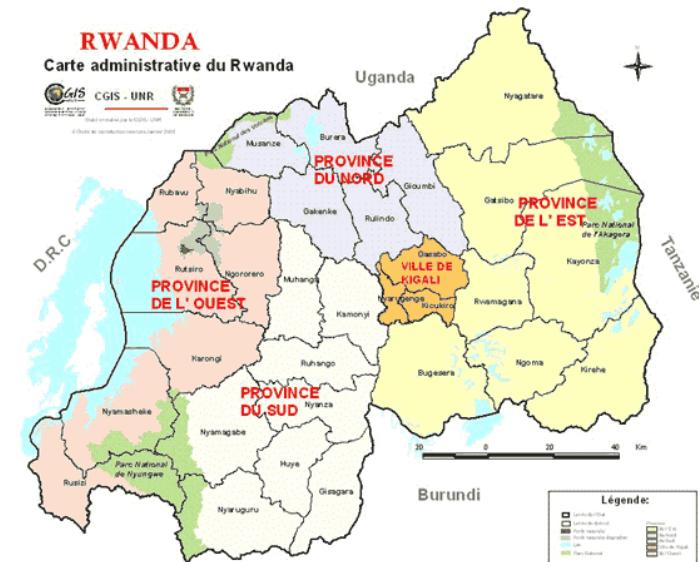
Ms Olinda Fondo, founder of ACOF

Strategic scenario to close the gaps identified in Rwanda

N2Africa activities were initially introduced in three provinces, namely Eastern, Northern, and Southern Provinces of Rwanda. In Phase 2, activities were scaled up in Western Province by partners operating there.

BNF technologies promoted by N2Africa in Rwanda were centered around two legume species: common bean (bush and climbing), and soyabean. The policy environment of Rwanda is very favorable to ensure continuity and sustainability of BNF technologies introduced/promoted by N2Africa partners. We can highlight here the crop intensification program (CIP), the input distribution network, especially for mineral fertilizers distribution, and an extension system (Twigire Muhinzi) which is similar to the demonstration plots used by N2Africa and managed by master/lead farmers.

The main challenge met is the popularization of legume inoculants, which are being produced and distributed by a government institution (Rwanda Agriculture Board- RAB). With the end of N2Africa, the chance that farmers will still have access to inoculants becomes small. There is a crucial need to ensure transition from government institution to private institutions for the production and distribution of legume inoculants at a large scale. The role of the government would be to ensure quality control.



Our recommendation on that would be to develop a proposal for a small project to improve the inoculant distribution network in the country, either with imported brands or the locally produced brand (Rizobiyumu).

The N2Africa Project Rwanda Exit Strategy report is available [here](#).

Speciose Kantengwa, Country Coordinator Rwanda

DRD partnering into the future

Current approach

N2Africa's partnership with DRD (Developpement Rural Durable) has been focused on the production of climbing beans. It has been a fruitful collaboration. Before the partnership, many farmers used only local bean varieties with low production, and with limited skills in agronomic practices, whereas now farmers have adopted improved practices.

Information on legume best practices have been popularized by N2Africa and DRD as follows:

The performance of climbing beans under various treatments was assessed at agronomy trials. A range of successful agronomic practices (for instance disease- or drought-resistant, high-yielding varieties, various fertilizer types and rates and staking practices such as string

staking) was then shown to farmers on demonstration trials. Other topics like rotation with maize, soil quality (through biological nitrogen fixation), the production of high quality livestock forage (resulting in good milk production) were discussed on these trials during participatory events. Farmers were then able to evaluate the varieties and practices that were shown and discussed. A lot of attention was also paid to improve seed multiplication and trade, to turn common beans into a cash crop. N2Africa partners at all levels were trained in different subjects such as biological nitrogen fixation, the use

of inoculants, agronomic practices, crop disease, pest control, positive seed selection in the field, post-harvest handling (for instance storage in a Picks bag), marketing and empowerment of women.

Field days, radio talks and JADF (Joint Action Development Forum) meetings were used to scale up dissemination of N2Africa technologies.

Exit Strategy

All the above activities are in DRDs annual planning, with a focus on two aspects:

(1) Ensuring that activities to enhance productivity of legume crops are fully integrated into national structures, through farmer cooperatives. Seed multiplication and bean

productivity will be improved through a partnership with RAB for a supply of seed and inoculants.

(2) Ensuring a sustainable input supply via a bean innovation platform that is called “Rwanda bean corridor” with a wide range of stakeholders: agro dealers (supply of seed, inoculants and fertilizers), bean producers (DRD has a Deputy Chair person place in the Northern for support), consumer groups (hotels, schools, prisons) and stakeholders involved in packaging, trade (local and export).

The platform will endorse commitment of farmers and their adoption of suggested practices with regard to production and marketing, guaranteeing a continuation of N2africa's impact.

Jacques Hakizimana, DRD coordinator

COCOF and the soyabean value chain

COCOF is a Rwandese organization created in 1994 by a group of rural women from the district of Kamonyi, with the aim to promote the socio, economic and political development of women. To date COCOF has 482 women members and 5881 beneficiaries with 68% women and 32% men. Beneficiaries are grouped in cooperatives.

COCOF intervenes in 6 programs with a predominance on agriculture sector with a strategy to work around 2 soya-bean value chains: certified seed production under contract with RAB (Rwanda Agriculture Board) and bulking grain for COCOF processing unit called MFPI (Muhanga Food Processing Industries). In these 2 value chains, COCOF provides inputs (seed and fertilizers) on credit to beneficiaries and gets refund at harvest at the time of collecting the production to sell to RAB and/or MFPI.

Each year, COCOF collects 60-100 ton of soyabean grain for MFPI and 10-15 tons of soyabean seeds, 120-150 tons of maize seeds, to RAB.

With the intervention of N2Africa and the use of BNF technologies, COCOF beneficiaries affirm to have increased the yield of soyabean to 2-2.5 ton per ha. With the income generated from the sales of soyabean and maize, they



have invested in other non-agriculture projects to improve the welfare of their families.

This is a summary by Speciose Kantengwa of an article in French by Nzigiye Cyrille, Agronomie, responsible for N2Africa within COCOF. To read the full French article [click here](#).

Zimbabwe N2Africa project exit strategy

After eight good years of working with thousands of smallholder farmers across seven districts during Phase I and five districts during Phase II, N2Africa Zimbabwe is now wrapping up the active funding phase of the project. In Zimbabwe, we are entering 'Phase III' in which farmers and our N2Africa partners will continue to reap the benefits of N2Africa technologies and approaches. Throughout the last eight years, N2Africa closely collaborated with the Cluster Agricultural Development Services (CADS), a

local NGO that has used truly inspiring approaches, taking farmers through essential steps from production to local consumption and marketing. AGRITEX, the Government Department of Agriculture and other technical and extension services provided an extensive network and thereby a unique vehicle for taking N2Africa technologies to scale. Collaborating with the Soil Productivity Research Lab (SPRL) inoculant factory ensured that the quality of inoculants delivered to the farming community remained impec-

cable. For all this, we in Zimbabwe are truly grateful to our partners. Below, we highlight the nodes that are pillars to continued project ripple effects beyond December 2017!

Access to inputs to drive future sustainable production
 Zimbabwe's economy has a huge agrarian inclination. This is one of the reasons why the SPRL has been continuously supported by governments since the 1960s to ensure that the country has sufficient inoculants. N2Africa has supplied some critical equipment to the laboratory and gave opportunities to local staff for training on current inoculant technology practices. The direct and mutual relationships that SPRL and seed companies have nurtured over the past few years are likely to fuel sustainability. Independent technology dissemination by partners, especially through demonstration trials by seed companies will continue in different farming communities.

Markets and processing

Smallholder farmers have often failed to access large scale buyers, such Olivine Industries in Harare, due to small volumes per transaction that are associated with large transaction costs. Training in collective marketing and the formation of viable community marketing associations have removed this bottle neck. Organization of training activities on collective action was anchored at the local level, a necessary recipe for sustainability.



Farmers used grain they had produced to make more valuable products

Technology dissemination and partnerships

Beginning from January 2016, the N2Africa team in Zimbabwe sought to place extension and other stakeholders at the forefront, with the role of core project staff limited to technical backstopping. The project sought to reach new



N2Africa branded legume products marketed by N2Africa farmers

farmers using fellow farmers as new 'experts' for technology dissemination. These successful farmers became hotspots for local dissemination of technologies into the future. We actively ensured that district-level extension planning mainstreamed grain legume production, including a dedicated session on grain legumes at ward and district-level agricultural shows. The confidence-building measures we adopted in working with local partners are part of our vision for sustained use of technologies before the active N2Africa project period. While the University of Zimbabwe has been leading the project during Phase II, it is important to highlight that the university is a local institution that will continue research and dissemination activities as most of the research is done on-farm. Through N2Africa, a lot of interest on grain legumes has been created among faculty and graduate and undergraduate students. This is the greatest hope we have – enhanced human capacity is the gateway to the future!

Success story

Lately, we have basked in glory as we marvelled at the demonstrated skills and knowledge by N2Africa farmer groups as they were fervently marketing their own produce at the annual Harare Food Fare. We indeed met some important components of this project –from production, to marketing to consumption! The grain legumes story has been hidden in smallholder farmers' hearts through N2Africa- the message has been cast in stone!

The N2Africa Project Zimbabwe Exit Strategy report is available [here](#).

Regis Chikowo, Country Coordinator Zimbabwe

N2Africa reinforced nutrition education for HIV-AIDS care groups in Zimbabwe

The Cluster Agriculture Development Services (CADS) implemented the N2Africa project activities during the last six years, principally in Goromonzi and Mutoko districts. CADS fosters better livelihoods for various communities faced with different challenges. The high HIV-AIDS prevalence has intensified the challenges. One of the entry points

to mitigate the negative effects of the pandemic is through improved access to locally produced nutritious diets. When CADS was initially invited to participate in the N2Africa project, we immediately realized we had found a natural partner to further our goals while concurrently meeting the objectives of N2Africa!



Farmers at a groundnut field day in Mutoko district

In CADS, we have a rich tradition of working on nutrition education with both male and female farmers. Our staff include experienced nutritionists and HIV-AIDS care givers and counselors. We pride ourselves in making a difference with few resources. Things got much better when we started working with N2Africa. Our staff got critical training in grain legume production technologies. We engaged farmers and they started getting better yields within just two years, especially as a result of using inoculants for producing soyabean. The stimulus was enormous. With use of the N2Africa technologies, our farmer groups are now able to



Farmers at a Cooking demonstration in Goromonzi District

produce more grain legumes. Farmers benefitted a lot from the field days, agricultural shows and trainings that were conducted with support from N2Africa.

As an organization, we managed to reap several positives as a result of working with N2Africa. For example, we no longer have to bring legume grains to communities for legume processing workshops because farmers provide grain from their own produce. As a result, we have managed to reach more communities with limited financial resources. As CADS we will strive to continue incorporating legume-based technologies that we have learnt from the N2Africa project. The future is in our hands!

Lilian Machivenyika, CADS Thrust

The Podcaster is published six to eight times per year – we look forward to receiving news and contributions – particularly from partners. Please send in contributions well in time. Contact address for this newsletter is: N2Africa.office@wur.nl

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