



## **N2Africa Project Malawi Exit Strategy**

Lloyd Phiphira (Country Coordinator, IITA)

With contributions from DADOs of Ntcheu, Dedza,  
Salima, Kasungu, Dowa and Mchinji

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**N2Africa**  
**Putting nitrogen fixation to work  
for smallholder farmers in Africa**



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Email: [n2africa.office@wur.nl](mailto:n2africa.office@wur.nl)  
Internet: [www.N2Africa.org](http://www.N2Africa.org)

#### Authors of this report and contact details

Name: Lloyd Phiphira  
E-mail: l.phiphira@cgiar.org

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## 1. Project Background

The N2Africa Project as a whole seeks to advance Biological Nitrogen Fixation (BNF) technologies and legume enterprise among small-scale African farmers. Malawi is one of its eleven countries and concludes its activities at the end of 2017. Malawi is well positioned to achieve project goals, largely due to the availability of commercialized BNF technology products, well organized government agriculture extension system and a large number of seed producing companies and a network of agro-dealers across the country. Project activities are largely directed toward the soyabean value chain, although some efforts were also put towards promotion of improved groundnut and cowpea technologies and interventions.

## 2. Purpose of Documenting Exit Strategies

This exit strategy is intended to ensure the sustainability of N2Africa Project impacts in Malawi after it ends in 2017. The entire focus during 2017 is upon the strategic allocation of resources that ensure achievement of the following objectives.

## 3. Objectives of Documenting Exit Strategies

The key focal areas of N2Africa exit strategy include:

- a) assurance that legume production is integrated into government structures as needed, particularly district agricultural extension and the regulation of legume inoculant quality,
- b) availability of BNF technology products (legume seed, and rhizobial inoculants) to farmers through commercial channels including "last mile" delivery channels, and
- c) the continuation of available and fair legume marketing opportunities to small-scale legume producers, including more localized and profitable value-added processing.

## 4. Assumptions and risks associated with N2Africa sustainability and scale

The following are assumptions and risks:

- a) Technology dissemination using government extension system with lead-farmer led model and other NGOs to continue. Challenges include low staffing levels of extension workers that may lead to some sections of the farming communities being inadequately served
- b) 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" agro-dealers. The risk is the high prices of legume seed that lead majority of smallholder farmers to recycle their seed
- c) Agro-dealers will continue to stock BNF technology products, and find their trade as profitable as other product lines. The risk, however is the not so well defined protocol in quality assurance of legume inoculants and storability of the inoculants in rural areas where there is no electricity to supply power for refrigeration.
- d) The diversity of legume-based products will continue and investment into localized grain legume marketing and processing will increase, and consumption of these legume products will result in improved nutrition. There are vast opportunities for women businesses to grow, however major challenges are inadequate financial capital and reliable transport. Knowledge gaps identified included inadequate skills in business management and record keeping, Sanitation and hygiene, and Leadership/ group dynamics.



## 5. Description of Exit Strategy

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 (DAES) 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. Below are explanations on how the Project executed its activities including some of the challenges encountered.

### A) Dissemination of technologies:

During the project life, N2Africa has been working with various partners such as the CRS, WV, NASFAM, AISL, ICCO/CARD and the government's Department of Agriculture Extension Services.. These organizations and Institutions have been disseminating technologies through establishment of technology evaluation plots, on farm demonstration plots, field days and agriculture fairs. N2Africa as a Research for Development project, used 'on-farm demonstration plot' approach which was used as a field school for the Lead Farmer and his/her follower farmers to enhance learning of the new technologies. Each Lead Farmer had between 14 and 19 follower farmers.. Each farmer group had one legume crop for the demonstration plots. Lead Farmers were responsible for training and monitoring of the follower farmers under supervision of their Extension Officers. With such an approach more than 40,000 have so far been reached. The risk to sustainably continue disseminating such activities after project closes is ranked from low to high from one organization to another. The table below summarizes these:

Organization	Opportunity	Challenge	Sustainability Risk rating
CRS	CRS through CADECOM's TAFIKA Project had been promoting BNF technology dissemination in Kasungu North and Mzimba South using the lead-farmer model and Its activities were implemented by Project Officers deployed in various sections of the organization's impact area. The Project came to a close in 2016 after successfully achieving most of its goals. The project promoted water, sanitation and hygiene; improved agricultural production technologies with emphasis on legume production (with technical support from IITA) including seed multiplication and agricultural marketing. The Lead-farmer model used ensured that farmers were empowered to continue using and disseminating the BNF technologies even after the project closed.	Since the project came to a close, some activities such as regular visitations by extension staff and provision of on-spot advice to farmers were scaled down	Medium



Organization	Opportunity	Challenge	Sustainability Risk rating
World Vision	WV did a lot of work with farmers in the four of the seven N2Africa Impact districts. The project goals were to improve Biological Nitrogen Fixation (BNF) through increased delivery of legume and inoculants' technologies to farmers. Delivery of legume and inoculants technologies to farmers were done through production, utilization and marketing of legumes.	The organisation pulled out of N2Africa during phase 2 hence most of the initiatives championed in Phase 1 were drastically scaled down.	High
	NASFAM is the largest smallholder owned membership organisation in Malawi. With support from N2Africa, NASAFAM established demonstration plots involving Lead Farmers reaching directly farmers in Lilongwe and Mchinji Districts and conducted field days. It also carried out capacity building activities in: demo establishment and management; Harvesting and Post-harvest handling; Nutrition and grain legume processing	Due to the large number of farmers NASAFAM deals with, sometimes monitoring and supervision presents some challenges. Mechanism to overcome such challenges include linking some farmer groups with other structures such as government extension system	Low
Churches Action in Relief and Development (CARD)/ Interchurch Organization for Development Cooperation (ICCO)	CARD under the Project named 'Soya Profitability Project' entered into partnership with IITA and Supported in business plan development of cooperatives; provided extension messages to farmers; using appropriate tools like on farm demonstration fields and lead farmers; Facilitated collective marketing within the clubs and cooperative; Provided farm inputs, namely certified seed, basic seed, inoculants and herbicides. Through the four cooperatives established under CARD's watch and having built capacity of the coops members, there are high chances of continuity of their activities in areas of soyabean production and marketing	The Soya Profitability Project life span was for three years (2015, 2016 and 2017). However, the first two years were characterized by severe droughts hence some targets such as increasing soyabean productivity were missed. During the two years of erratic rains, some farmers were unable to pay back the loans which they owed CARD.  Under the soyabean seed production association, the constraint they faced was inability to package and brand their seed for sale and compete with other big companies	Medium



Organization	Opportunity	Challenge	Sustainability Risk rating
Agro-Input Suppliers Limited (AISL)	<p>AISL has for the past three years been actively involved in BNF technology dissemination through setting up on-farm demonstration plots showcasing yield benefits of using inoculant and conducting field days on same.</p> <p>Since the firm is the sole producer of soyabean seed inoculant in Malawi, there are very high chances of sustaining such activities in for the foreseeable future owing to the</p>	Currently coverage of their activities is limited to central region districts of Malawi plus additional three to four form the other regions. Hence less than 40% of the soyabean growing areas in Malawi are covered by AISI	Low
Department of Agriculture Extension Services (DAES)	<p>DAES through District Agriculture Development Offices (DADOS) has a well-structured agricultural extension system in Malawi. DADOS through EPAs were the driving force in technology dissemination throughout N2Africa's project implementation period. DAES used the lead-farmer approach narrated above.</p> <p>Sustainability of activities after N2Africa closes is assured owing to the availability of staff from grass-root to top management across the country</p>	The biggest challenge encountered and likely to continue is inadequate staffing levels at in EPAs. On average, staff vacancies in EPAs range from 40-50%	Medium

- Promotion of Appropriate Technologies to Reduce Drudgery

**Labour saving tools:** In a bid to reduce women drudgery in areas of post-harvest processing, N2Africa distributed groundnut threshing machines for use by women across the impact areas. The groups are now able to thresh their groundnuts faster and the shellers are also used to generate income for the groups by offering the services to the community at a fee. There are high prospects of sustainability owing to the following: a) the women are able to generate income from the services shelling and using the money as a revolving fund; b) The groups have been linked to the fabricator for any technical support in terms of replacement of worn-out parts if need be and also to purchase additional machines directly. The fabricator of the shellers is locally-based and the price for each is almost 50% cheaper than other brands.

#### **A) Inoculant Availability and Usage**

N2Africa worked with the private sector and agro-dealers as the partners, to map a way of producing affordable inoculant in Malawi. Through the public private partnership (PPP) model, with support from N2Africa, DARS and Malawi Oilseed Sector Transformation (MOST). Agro-Input Suppliers Limited (AISL), a private sector firm, took up the challenge to scale up the production of inoculant with Nitrofix as its brand name. N2Africa trained two technicians 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 last 2016/2017 season, AISL sold more than 200,000 packets of rhizobium inoculants in Malawi. The inoculants are produced in a small building and a transport container that has been converted into a microbiology laboratory. However, the inoculant production will, in 2018 relocate into a bigger facility with robust laboratory equipment built a few kilometers from the current location which would cater the whole of southern Africa.

There are however, a few challenges that are currently being looked into and these include limited capacity to distribute the inoculant to all parts of the country. The agro-dealer network that has jointly been established by N2Africa and AISL is vibrant but is located mostly in town centres and major trading



centres in some instances miles away from farmers. There are also challenges in transportation and storage of inoculant since it cannot be stored outside refrigeration for many days. Despite these few gaps and challenges, there is very high likelihood of AISL sustainably making available soyabean seed inoculant to meet the growing demand of farming community in Malawi.

On the part of inoculant usage, there have been massive campaigns sensitizing farmers on benefits of using inoculant among the farming communities in Malawi. Such campaigns took in the form of on-farm demonstration, field days, agriculture fairs, and media events among others. Tens of thousands of people have been reached with BNF technologies. Based on statistics from AISL, usage of inoculant (Nitrofix) is on the rise with the 2016/2017 figures reaching to more than 200,000 packets of Nitrofix up from 20,000 in 2014/2015 season.

#### **B) Seed availability and usage**

There are four identified dominant seed systems in Malawi, which include; public institutions (DARS and CGIAR), private seed companies (international and local), NGOs and farmers' organisations and farmer-saved seed system (Dzanja and Chimoyo, 2016). The farmer-saved seed system accounts for the majority of seed volume, The farmer-saved, NGOs and farmers' organisations are considered informal. Malawian farmers usually acquire seed through the informal system. In the farmer-saved seed system, farmers themselves multiply and exchange seed, both through trade and sometimes for cash. In the second informal system, non-governmental organizations (NGO) are assisting community groups or farmers organisations in seed multiplication and marketing.

N2Africa and CARD used the second informal system where farmers under one association in Kasungu were trained on soyabean seed multiplication and were provided with resources such as basic seed, inoculants and other inputs on loan. The program was fairly successful during the first year of its existence, was able to produce about eight tons of certified seed which was bought back by CARD and distributed on loan to other farmers within the project. Equipped with seed multiplication and output marketing skills, farmers under the association are geared to repeat the exercise in the 2017/2018 season and beyond using their own resources. At IITA-Malawi, two projects, MISST (Malawi Improved Seed Systems and Technology) and INVC are engaged in out-grower soyabean seed multiplication program and have this year produced over 100 metric tonnes of basic soyabean seed. The basic seed is sold to other NGOs and individual farmers who venture into production of certified seed. Some newly established local seed companies such as MUSECO have also taken on board the production of foundation seed of the nontraditional crops such as soyabeans, common beans and groundnuts. The above mentioned programs plus a few more other NGOs are doing commendable jobs in trying to ensure availability of improved seeds in Malawi, although despite not meeting the demand.

Some of the challenges in the supply and demand of legume seeds include: Supply bottlenecks: (i) Under-capacity of breeder seed production; (ii) lack of private sector involvement in basic and commercial seed production; and (iii) lack of capacity by SSU is one of the major bottlenecks of the Malawi seed value chain. For quality seed to be available in sufficient quantities the SSU needs a short in the arm to build both its human and infrastructural capacity. This problem is exacerbated by the fact that most of the seed production fields, especially those organised by farmer organisations, are small and scattered over wide geographical locations. This geographical dispersion requires substantial human resources and physical resources such as vehicles to facilitate the seed inspection activities. As has been highlighted earlier in this report, the SSU is significantly constrained in these areas.

Mechanisms to address the above mentioned constraints have been outlined in documents such as the National Export Strategy and several other government policy documents. Hence there is already significant political and general stakeholder will to promote such crop value chains in the country. The focus is to expand and enhance seed production capabilities to meet current and future demand through public-private collaboration that ensures profitable seed production (of non-tradition crops) and a robust yet cost effective quality assured system that drives farmer demand to purchase improved high quality seed.

#### **C) Fertiliser availability and usage**

As part of the adoption of the private sector participation in the fertilizer marketing policy, government encouraged the development of small-scale business enterprises' participation in the distribution and marketing of fertilizers in Malawi. Overall, there are now over 1,000 fertilizer outlets in the country largely restricted urban areas. The policy has led to the development of more organized small scale agro-



dealers who are scattered throughout the country. However, profit-seeking and increased commercialization, has led to a reduction in fertilizer sales and distribution in rural areas. The main fertilizer types used in Malawi are urea, 23:21:0+4S, CAN, and D compound. Urea and 23:21:0+4S are commonly applied to Maize, whereas CAN and D compound suite tobacco application. The proliferation of these fertilizer types in Malawian agriculture reflects the country's dependence on these two crops. There are currently no fertilizers specific for soyabean in Malawi, however, the government of Malawi through DARS recommends use of 23:21:0+4S, and others use P-based fertilizers such as single or double super phosphates. Utilization of such fertilizers in soyabean among smallholder farmers in Malawi is very limited, it is mostly large soyabean growers who apply. Some of the reasons why usage of fertilizers in soyabean is low is the perception that been there that legumes do not require fertilizer and coupled with high costs to purchase. Farmer's priorities application of fertilizer to maize and tobacco than any other crop. It is therefore generally common knowledge that there are no major headways in the adoption of fertilizer use in legumes among smallholder farmers and the trend is unlikely to improve in the foreseeable future.

#### **D) Input Supply information**

Market Information Systems about sources of inputs, prices, types and uses are not readily available for both farmers and dealers. As such farmers and dealers are not able to make informed decisions about what inputs to buy and where to buy them.

#### **E) Output market information**

Efforts to provide output markets information are available in the country. Public and private radio broadcasters have programs that alert buyers where they can find various agricultural produce and at what price for which grade.. 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 Malawi include AHX Commodity Co. Ltd, Sunseed Oil Company, Mulli Brothers Ltd, Farmers World, Superstar Oil Company, Export Trading Group (ETG) and the government through the farmers input subsidy program (FISP). These organizations are willing to offer cash at sales, higher prices for higher quality grain and to share arrangements for collection point pick-up especially in large quantities. One major setback however, is lack of cohesion among farmers to bulk their produce and bargain for higher prices and this results in middle-men taking advantage of this and buy from the farmers at lower prices hence not benefitting the smallholder farmers.

#### **F) Inoculant Quality control**

DARS (The Microbiology Unit) has the mandate to conduct quality control of inoculant in Malawi. Since AISL started inoculant production, DARS has fairly been involved in conducting such checks at the production point and so far there have been no major problems. There are however, huge gaps in terms of checking the quality of inoculants at sales points as well as at utilisation (farmers) points. Major constraints cited include inadequate of human resources, insufficient financial resources to enable the unit to carry out spot check at sales and farmers points. The risk of farmers being sold and/or using poor quality inoculants is high. Unless DARS make deliberate effort to allocate more staff in the unit and make available financial resources to carry out such checks, the end user of the products (farmers) is at risk of being supplied with poor quality inoculants in the event of something going very wrong along the supply chain.



## 6. Status of exit strategies: Sustainability matrix

Below matrix gives summary of the status of the 3 main exit strategy drives and in relation to now and post project/sustainability. **Key: 1=achieved/will be; 0= not achieved/will not be; - not applicable**

Item	Partner <sup>1</sup> Name							
	AISL	CARD	DAES	DARS	NASFAM	CRS	Several Seed Companies	Several Fertilizer Companies
<b>Project time</b>								
Dissemination of technologies: Use of packaged information (tools, guidelines, technical briefs, platforms) on legume best practices	1	1	1	-	1	1	-	-
Dissemination of technologies: Use of knowledge (direct capacity building) on legume best practices	1	1	1	-	1	1	-	-
Inoculant availability <sup>2</sup>	1	1	1-	-	-	-	-	-
Seed availability	1	1-	1	-	1	1	-	1
Fertilizer availability	-	-	-	-	-	-	-	1
Inoculant Usage	1	1	1	-	1	1	-	-
Seed Usage	1	1	1	-	1	1	-	-
Fertilizer Usage	-	-	1	-	1	1	-	-
Inoculant Supply (supply chain Champion)	1	-	-	-	-	-	-	-
Seed Supply (supply chain Champion)	1	-	-	-	1	-	1	-
Fertilizer Supply (supply chain Champion)	-	-	-	-	-	-	-	1
Input Supply Info	1	-	1	-	1	1	-	-
Output Supply Info	1	1	1	-	1	1	-	-
Inoculant Quality control	-1	-	-	1	-	-	-	
Inoculant R4D/Research to adapt	-	-	-	0	-	-	-	-
<b>Sustainability / post project</b>								
Dissemination of technologies: Use of packaged information (tools, guidelines, technical briefs) on	1	1	1	-	1	1	-	-

<sup>1</sup> Partners include those who play key role in partnerships but are not signatories, national platforms, national bodies, etc.

<sup>2</sup> Availability means registered and sold



Item	Partner <sup>1</sup> Name							
	AISL	CARD	DAES	DARS	NASFAM	CRS	Several Seed Companies	Several Fertilizer Companies
legume best practices promoted by N2Africa								
Dissemination of technologies: Use of knowledge (direct capacity building) on legume best practices promoted by N2Africa	1	0	1	-	1	0	-	-
Inoculant availability <sup>3</sup>	1	0	1-	-	0	0	-	1
Seed availability	1	0	1	-	1	0	0	-
Fertilizer availability	-	-	-	-	-	-	-	1
Inoculant Usage	1	0	1	-	0	0	-	-
Seed Usage	1	1	1	-	1	0	-	-
Fertilizer Usage	-	0	1	-	1	0	-	-
Inoculant Supply (supply chain Champion)	1	-	-	-	-	-	-	-
Seed Supply (supply chain Champion)	1	-	-	-	1	-	1	1
Fertilizer Supply (supply chain Champion)	-	-	-	-	-	-	-	1
Input Supply Info	1	0	1	-	1	0	-	-
Output Supply Info	1	0	1	-	1	0	-	-
Output market champion	1	-	-	-	-	-	-	-
Inoculant Quality control	-	-	-	1	-	-	-	-
Inoculant R4D/Research to adapt	-	-	-	0	-	-	-	-

<sup>3</sup> Availability means registered and sold



## 7. Way forward: Strategic scenarios to close the gaps identified

### A. Dissemination of Technologies

- i. The main partners that are likely to continue dissemination activities based on the analysis above are DAES, AISL, NASFAM and cooperatives formed under ICCO/CARD. DAES: meetings with DADOs will be conducted before the project closes to consolidate the continuation of on-farm demonstration by lead-farmers and their follower farmers. The seed pass-on program that had been instituted during Phase 1 continued in Phase 2 and such farmer-saved seed system will continue under the leaderships of lead-farmers and supervision of AEDCs/AEDOs. Therefore, lead-farmers will be the driving force at grass-root level in the continuation of dissemination of technologies
- ii. AISL: the company is steadily expanding its coverage and with the production capacity of AISL increasing, it is likely to make good headways in continuation of BNF technology dissemination. AISL has a fair share of works in the BNF information dissemination through radio adverts, distribution of brochures and leaflets.
- iii. NASFAM: the organization has the facilities and skilled personnel necessary to sustainably continue disseminating legume technologies. Through a sustainable network of smallholder-owned business organizations, NASFAM promotes farming as a business in order to develop the commercial capacity of its members, and delivers programmes which enhance member productivity
- iv. ICCO/CARD: 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 activities in areas of soyabean production and marketing. Farmers belonging to the seed production association intend to add value to their seed by packaging and branding. One of the ways CARD is pursuing to ensure that the association sustain its activities is by linking them to big agro-dealer companies such as Farmers World.

### B. Inoculant Availability and Usage

Despite a few gaps and challenges outlined in preceding sections, there is very high likelihood of AISL sustainably making available soyabean seed inoculant to meet the growing demand of farming community in Malawi. The agro-dealer network that has jointly been established by N2Africa and AISL is vibrant but is located mostly in town centres and major trading centres in some instances miles away from farmers. The risk of storage conditions leading to loss of quality is being addressed by deliveries of solar-powered refrigerators by AISL and in the long term by looking into methods of developing inoculant formulas that do not require refrigeration. On the part of inoculant usage, there have been massive campaigns sensitizing farmers on benefits of using inoculant among the farming communities in Malawi. Such campaigns took in the form of on-farm demonstration, field days, agriculture fairs, and media events among others. Tens of thousands of people have been reached with BNF technologies.

### C. Seed availability and usage

Some of the challenges in the supply and demand of legume seeds include: Supply bottlenecks: (i) Under-capacity of breeder seed production; (ii) lack of private sector involvement in basic and commercial seed production; and (iii) the limited capacity of the Seed Services Unit to enforce seed certification activities. Demand constraints: (i) Smallholders lack awareness of improved varieties' benefits; (ii) limited awareness of the business case to invest in improved varieties of the non-traditional seed business crops (legumes etc.); (iii) lack of financing at the seed producer and farmer levels, and; (iv) lack of capacity to identify counterfeit seed on part of farmers

Mechanisms to address the above mentioned constraints have been outlined in documents such as the National Export Strategy and several other government policy documents. Hence there is already significant political and general stakeholder will to promote such crop value chains in the country. The focus is to expand and enhance seed production capabilities to meet current and future demand through public-private collaboration that ensures profitable seed production (of non-tradition crops) and a robust yet cost effective quality assured system that drives farmer demand to purchase improved high quality seed.



Proposal to revitalize the SSU human resource capacity building and improvement of infrastructure have been made to Development partners that can play a major role in this intervention. The Seed Services unit is largely constrained in terms of human resource and relevant modern infrastructure. The country needs significant numbers of well-trained seed inspectors and professionals and the current seed testing laboratory needs significant revamping.

#### **D. Input Supply information**

To improve the dissemination of extension marketing information on inputs there is need for one-stop shops for information on inputs. Such shops should provide users with full package of information to guide the use of various inputs. Such shops need to be strategically positioned to enable farmer's access to information. The resource centres ought to be established in various parts of the country. The centres should stock all the necessary information on input sources, handling procedures, prices and even uses of different types of inputs including fertilizers. Such information will enable farmers make informed choices and decisions about the type of product to go for, how to source it, handle it and manage it. Organizations such as African Institute of Corporate Citizenship could take a leading role in this initiative.

#### **E. Inoculant Quality Control**

There is need for DARS to make deliberate effort to allocate more staff in Microbiology Unit and make available financial resources to carry out quality checks at all distribution points. This should include at sales points where the agro-dealer stocks the inoculant for distribution to farmers as well as at the farm level where the farmer has purchased the inoculant and is ready to use at his/her farm.



## ACRONYMS

<b>AISL:</b>	Agro-Input Suppliers Limited
<b>CARD</b>	Churches Action in Relief and Development
<b>ICCO</b>	Interchurch Organization for Development Cooperation
<b>BNF</b>	Biological Nitrogen Fixation
<b>NASFAM</b>	National Smallholder Farmers Association of Malawi
<b>AEDCs</b>	Agricultural Extension Development Coordinators
<b>AEDOs</b>	Agricultural Extension Development Coordinators
<b>DADOs</b>	District Agricultural Development Offices
<b>CADECOM</b>	Catholic Development Commission of Malawi



## List of project reports

1. N2Africa Steering Committee Terms of Reference
2. Policy on advanced training grants
3. Rhizobia Strain Isolation and Characterisation Protocol
4. Detailed country-by-country access plan for P and other agro-minerals
5. Workshop Report: Training of Master Trainers on Legume and Inoculant Technologies (Kisumu Hotel, Kisumu, Kenya-24-28 May 2010)
6. Plans for interaction with the Tropical Legumes II project (TLII) and for seed increase on a country-by-country basis
7. Implementation Plan for collaboration between N2Africa and the Soil Health and Market Access Programs of the Alliance for a Green Revolution in Africa (AGRA) plan
8. General approaches and country specific dissemination plans
9. Selected soyabeans, common beans, cowpeas and groundnuts varieties with proven high BNF potential and sufficient seed availability in target impact zones of N2Africa Project
10. Project launch and workshop report
11. Advancing technical skills in rhizobiology: training report
12. Characterisation of the impact zones and mandate areas in the N2Africa project
13. Production and use of rhizobial inoculants in Africa
14. Adaptive research in N2Africa impact zones: Principles, guidelines and implemented research campaigns
15. Quality assurance (QA) protocols based on African capacities and international existing standards developed
16. Collection and maintenance of elite rhizobial strains
17. MSc and PhD status report
18. Production of seed for local distribution by farming communities engaged in the project
19. A report documenting the involvement of women in at least 50% of all farmer-related activities
20. Participatory development of indicators for monitoring and evaluating progress with project activities and their impact
21. Suitable multi-purpose forage and tree legumes for intensive smallholder meat and dairy industries in East and Central Africa N2Africa mandate areas
22. A revised manual for rhizobium methods and standard protocols available on the project website
23. Update on Inoculant production by cooperating laboratories
24. Legume Seed Acquired for Dissemination in the Project Impact Zones
25. Advanced technical skills in rhizobiology: East and Central African, West African and South African Hub
26. Memoranda of Understanding are formalized with key partners along the legume value chains in the impact zones
27. Existing rhizobiology laboratories upgraded
28. N2Africa Baseline report
29. N2Africa Annual country reports 2011
30. Facilitating large-scale dissemination of Biological Nitrogen Fixation



35. Dissemination tools produced
36. Linking legume farmers to markets
37. The role of AGRA and other partners in the project defined and co-funding/financing options for scale-up of inoculum (banks, AGRA, industry) identified
38. Progress Towards Achieving the Vision of Success of N2Africa
39. Quantifying the impact of the N2Africa project on Biological Nitrogen Fixation
40. Training agro-dealers in accessing, managing and distributing information on inoculant use
41. Opportunities for N2Africa in Ethiopia
42. N2Africa Project Progress Report Month 30
43. Review & Planning meeting Zimbabwe
44. Howard G. Buffett Foundation – N2Africa June 2012 Interim Report
45. Number of Extension Events Organized per Season per Country
46. N2Africa narrative reports Month 30
47. Background information on agronomy, farming systems and ongoing projects on grain legumes in Uganda
48. Opportunities for N2Africa in Tanzania
49. Background information on agronomy, farming systems and ongoing projects on grain legumes in Ethiopia
50. Special Events on the Role of Legumes in Household Nutrition and Value-Added Processing
51. Value chain analyses of grain legumes in N2Africa: Kenya, Rwanda, eastern DRC, Ghana, Nigeria, Mozambique, Malawi and Zimbabwe
52. Background information on agronomy, farming systems and ongoing projects on grain legumes in Tanzania
53. Nutritional benefits of legume consumption at household level in rural sub-Saharan Africa: Literature study
54. N2Africa Project Progress Report Month 42
55. Market Analysis of Inoculant Production and Use
56. Identified soyabean, common bean, cowpea and groundnut varieties with high Biological Nitrogen Fixation potential identified in N2Africa impact zones
57. A N2Africa universal logo representing inoculant quality assurance
58. M&E Workstream report
59. Improving legume inoculants and developing strategic alliances for their advancement
60. Rhizobium collection, testing and the identification of candidate elite strains
61. Evaluation of the progress made towards achieving the Vision of Success in N2Africa
62. Policy recommendation related to inoculant regulation and cross border trade
63. Satellite sites and activities in the impact zones of the N2Africa project
64. Linking communities to legume processing initiatives
65. Special events on the role of legumes in household nutrition and value-added processing
66. Media Events in the N2Africa project
67. Launch N2Africa Phase II – Report Uganda



68. Review of conditioning factors and constraints to legume adoption and their management in Phase II of N2Africa
69. Report on the milestones in the Supplementary N2Africa grant
70. N2Africa Phase II Launch in Tanzania
71. N2Africa Phase II 6 months report
72. Involvement of women in at least 50% of all farmer related activities
73. N2Africa Final Report of the First Phase: 2009-2013
74. Managing factors that affect the adoption of grain legumes in Uganda in the N2Africa project
75. Managing factors that affect the adoption of grain legumes in Ethiopia in the N2Africa project
76. Managing factors that affect the adoption of grain legumes in Tanzania in the N2Africa project
77. N2Africa Action Areas in Ethiopia, Ghana, Nigeria, Tanzania and Uganda in 2014
78. N2Africa Annual Report Phase II Year 1
79. N2Africa: Taking Stock and Moving Forward. Workshop report
80. N2Africa Kenya Country Report 2015
81. N2Africa Annual Report 2015
82. Value Chain Analysis of Grain Legumes in Borno State, Nigeria
83. Baseline report Borno State
84. N2Africa Annual Report 2015 DR Congo
85. N2Africa Annual Report 2015 Rwanda
86. N2Africa Annual Report 2015 Malawi
87. Contract Sprayer in Borno State, Nigeria
88. N2Africa Baseline Report II Ethiopia, Tanzania, Uganda, version 2.1
89. N2Africa rhizobial isolates in Kenya
90. N2Africa Early Impact Survey, Rwanda
91. N2Africa Early Impact Survey, Ghana
92. Tracing seed diffusion from introduced legume seeds through N2Africa demonstration trials and seed-input packages
93. The role of legumes in sustainable intensification – priority areas for research in northern Ghana
94. The role of legumes in sustainable intensification – priority areas for research in western Kenya
95. N2Africa Early Impact Survey, Phase I
96. Legumes in sustainable intensification – case study report PROIntensAfrica
97. N2Africa Annual Report 2016
98. OSSOM Launch and Planning Meeting for the west Kenya Long Rains 2017
99. Tailoring and adaptation in N2Africa demonstration trials
100. N2Africa Project DR Congo Exit Strategy
101. N2Africa Project Kenya Exit Strategy
102. N2Africa Project Malawi Exit Strategy



## Partners involved in the N2Africa project

