



N2Africa Phase II 6 months report

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N2Africa

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



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Summary

This first six months report of N2Africa Phase II summarizes the progress made in terms of project structure and partnerships, research activities, dissemination activities, capacity building and sustainable input supply in the five Core Countries and the six Tier 1 countries. Good progress has been made towards Objective 1 - Project strategy, coordination and implementation and capacity strengthening – in all countries. An overall technical expertise team, leading activities across all countries, has been established. In addition, launch and planning meetings have been organized in all countries. The meetings were all well attended. All country coordinators have started, and the majority of other national staff in the Core Countries has been appointed. In the Tier I countries, the national staff consists of a country coordinator, in some cases with an assistant.

Progress against the other objectives includes the development of Master Plans on 1) Agronomy, 2) Rhizobiology, 3) Dissemination and 4) Platforms, which foster a common approach among the N2Africa Core Countries. Core Countries are currently planning research and dissemination activities for the coming growing season, following the strategies from the Master Plans. Core Countries have also started to set up stakeholder platforms, intended to build sustainable legume value chains.

The Tier 1 countries have successfully involved many partners for indirect dissemination of N2Africa technologies. In DRC and Rwanda, countries which are currently in a growing season, partners have established demonstration trials in various sites and have reached thousands of farmers with input packages. Other Tier 1 countries are preparing for the coming growing season by training extension staff from (new) partners and ensuring input supplies.

Keywords

Nigeria, Ghana, Ethiopia, Uganda, Tanzania, DRC, Kenya, Rwanda, Mozambique, Malawi, progress, Master Plans



1 Introduction

1.1 N2Africa's main aim and objectives

The main aim of N2Africa is to build sustainable, long-term partnerships to enable African smallholder farmers to benefit from symbiotic N₂-fixation by grain legumes. Benefits for farmers will be increased through effective production technologies, including inoculants and fertilizers, and through the establishment of new value chains. We aim to also include the poorest farmers and female farmers. The project has five major objectives which help us to achieve this goal: 1) Project strategy, coordination and implementation and capacity strengthening, 2) Delivery and dissemination, sustainable input supply, and market access, 3) Empower women to increase benefits from legume production, 4) Tailor and adapt legume technologies to close yield gaps and expand the area of legume production within the farm, and 5) Enable learning and assess impacts at scale through strategic M&E.

1.2 Progress made against Objective 1

In the first months of N2Africa Phase II, good progress has been made towards Objective 1 - Project strategy, coordination and implementation and capacity strengthening. With an individual meeting in each country, N2Africa Phase II was officially launched in the Core Countries Tanzania, Uganda, Ethiopia, Ghana and Nigeria in February 2014. A central planning meeting for the Tier 1 countries Kenya, DRC, Malawi, Zimbabwe and Mozambique was held in April in Nairobi, Kenya. More detailed planning meetings were organized at a national level. In terms of project staff, full country teams had to be (re-)established in the Core countries Nigeria, Ghana, Ethiopia, Tanzania and Uganda. To date all country coordinators have started, and the majority of other national staff has been appointed. National staffs in the core countries include, beside the country coordinator, a business development officer, a data management officer and, in most cases, an administrative assistant.

At the same time, the coordination and implementation structure in the Tier 1 countries changed. Whereas in Phase I the Tier 1 countries had a full national team and many partners disseminating N2Africa technologies with direct N2Africa funding, in Phase II the national staff in these countries consists of a country coordinator, in some cases with an assistant. In addition, all activities, including dissemination, occur through co-funding with or full funding from other partners. The Tier 1 countries have successfully coped with this change and have already involved many partners for indirect dissemination of N2Africa technologies.

In addition, an overall technical expertise team, leading activities across all countries, has been established. The business development officer, data management leader and rhizobiology leader have started working. The overall N2Africa Project Coordinator and the M&E specialist have been appointed recently and will join the team in June. Other experts, in amongst others gender, seed systems, nutrition and spatial analysis, are supporting the project part-time.

1.3 Progress made against the other objectives

In the Core Countries, activities focus on cowpea, groundnut and soyabean in Ghana and Nigeria, on common bean, cowpea, groundnut and soyabean in Tanzania and Uganda, and on common bean, soyabean, chickpea and faba bean in Ethiopia. Research and dissemination activities are continuing based on earlier work from Phase I and the Bridging Grant, but with a stronger focus on adaptation of technologies, tailoring of technologies for different types of farmer and customizing dissemination approaches. In addition, there will be an increased focus on input and output markets for grain legumes, involving many stakeholders. Gender comes in as a cross-cutting theme. To foster a common approach in achieving N2Africa's vision of success across all the Core Countries, Master Plans have been developed on 1) Agronomy, 2) Rhizobiology, 3) Dissemination and 4) Platforms. Appendix I contains a short description of the individual Master Plans, including the main activities and the relationships between the various Plans.



In the Tier 1 countries (Kenya, DRC, Rwanda, Malawi, Zimbabwe, Mozambique), the aim is to disseminate the outcomes from the first phase through co-funded dissemination activities. All Tier 1 countries have retained partners from Phase I involved and are currently involving new partners to increase the coverage area. In DRC and Rwanda, countries which are currently in a growing season, partners have established demonstration trials in various sites and have reached thousands of farmers with input packages. Other Tier 1 countries are preparing for the coming growing season by training extension staff from (new) partners and ensuring input supplies, together with partners.

1.4 Structure of the report

This first 6 months report summarizes the progress made on the five major objectives for N2Africa Phase II in each country so far. The major part of results to date focus on Objective 1: project strategy, coordination and implementation and capacity strengthening. In some countries activities took place in the transition phase. In those cases, results from this period are also presented.



2 Core Countries

2.1 Ghana

2.1.1 Project Structure and Partnerships

In Ghana, N2Africa is currently being implemented by a country team consisting of the National Coordinator (Samuel Adjei-Nsiah), Robert Abaidoo, Andrews Opoku from Kwame Nkrumah University of Science and Technology (KNUST) and Ben Ahiabor of the Savannah Agricultural Research Institute (SARI). Positions for Business Development Officer (BDO) and Data Analyst (DA) have been advertised and candidates who applied have been shortlisted for each of the positions. These candidates will be appointed to begin work in June, 2014. Partnerships have been formed with similar initiatives and programmes within the N2Africa project impact zone for dissemination of N2Africa technologies. Major organisations and initiatives who have partnered with N2Africa for the dissemination of N2Africa technologies include Adventist Relief Agency (ADRA), Agricultural Development and Value Chain Enhancement (ADVANCE) II Program and AgDevCO.

2.1.2 Research Activities

To date, the country team has met twice to plan for research activities for the 2014 farming season. Agronomic research will be carried out by the Savannah Agricultural Research Institute. The trials for the 2014 farming season have been discussed and designed. Rhizobiology Research is being carried out by Kwame Nkrumah University of Science and Technology.

2.1.3 Dissemination Activities

Dissemination activities will start in June. A meeting was held on April 22nd, 2014, with N2Africa dissemination partners to plan the activities. Demonstration sites have already been identified and technologies to be demonstrated and disseminated have been planned and discussed with all partners. About 350 demonstrations, involving about 350 farmer associations, will be set up under N2Africa-led dissemination activities. In addition about 500 demonstrations will be set up under partner-led dissemination activities led by ADRA, ADVANCE, ADVECO and others. Plans have been made to target women in the dissemination activities. Most of the dissemination partners already have female farmers as their target groups.

2.1.4 Capacity Building

Capacity building activities have been planned for 2014 planting season. Dissemination activities will be preceded by training of field staff from our dissemination partners on the 14th of May, 2014. A PhD position for Ghanaian students on grain legume residues as a livestock feed resource for smallholders in Northern Ghana has been advertised. Candidates have been shortlisted for interview.

2.1.5 Sustainable input supply

One partner, Antika Agro-chemicals, has been identified for the importation and distribution of Legumefix inoculant in Ghana. N2Africa in collaboration with COMPRO II is assisting in the registration of Legumefix in Ghana. COMPRO is assisting the Directorate of the Plant Protection and Regulatory Services of the Ghana Ministry of Food and Agriculture to develop standards and quality control procedures for rhizobia inoculants for the country.



2.2 Nigeria

2.2.1 Project structure and partnerships

Project structure and partnerships are all in place in Nigeria. N2Africa Phase II in Nigeria was launched March 7th 2014. During that meeting the team mapped out a strategy for implementation and immediate take-off of the project. The 2014 work plan for Nigeria has been developed with responsibilities assigned to appointed project objective leaders, and with the draft master work-plan from the central project office in mind. Partnership meetings were held in three states (Kaduna, Kano and Niger), desk officers for Phase II were appointed and a work plan has been developed for partner led delivery and dissemination. To maximize project outcomes, N2Africa also leverages with other projects. As an example, short descriptions of two meetings with such partners are given below.

COMPRO-II stakeholder meeting April 2nd-4th

N2Africa attended the COMPRO stakeholder meeting in Lagos April 2-4 to fine-tune alliance for synergy and collaboration. The meeting stressed the need for a viable collaboration between COMPRO and N2Africa because the two projects share similar objectives. N2Africa and COMPRO-II agreed on joint approach to regulatory bodies in Nigeria for research permits, product registration and development of protocols with the National Agency for Food and Drug Administration and Control (NAFDAC) for research and confirmation trials in Nigeria. This could be useful especially for inoculants N2Africa may want to register in Nigeria. The meeting also explored the opportunity of sourcing cowpea and groundnut inoculant from reputable chemical companies such as BASF.

IITA Business innovation platform meeting April 12th

N2Africa had a meeting with Shane Masters, a consultant from Paris hired by IITA to develop a business plan for the Nodumax inoculant plant. The Nodumax inoculant plant has been successfully installed at the IITA campus in Ibadan and is ready for test running operations. During the meeting, the proposal for Nodumax was projected and suggestions were made to further improve its quality. The first version of the NoduMax business plan and financial model has been circulated among stakeholders for review and comments.

2.2.2 Research activities

Three Universities were selected for agronomy research activities. These include Ahmadu Bello University Zaria, Federal University of Technology Minna and Bayero University Kano. Work plans for 2014 trials have been developed, as agreed during the stakeholder workshop/launching of the project. Protocols for different experiments have been developed and are currently undergoing review by the research partners. The central project office is currently working on harmonized protocols on design, data collection, measurement and observations in trials. These protocols will be used in all research and demo trials.

2.2.3 Dissemination activities

The work plan for partner led dissemination is currently undergoing review and sub-agreement is expected to be reached by early May, in time for the beginning of the coming raining season. Inputs for the dissemination activities have been arranged. 5 tonnes of soyabean and 1.8 tonnes of groundnut seed of several varieties have been procured from an identified Seed Company for dissemination and delivery activities. The fertilizer company has been contacted for the supply of P fertilizer. At the moment, procurement of fertilizer is in progress and we expect the fertilizer to be delivered in the coming days. 2.4 tonnes of inoculant were still stored in a cold room in Kano. These



inoculants have been tested for quality. The inoculants are still of excellent quality and will be used the coming season.

2.2.4 Capacity building

Training programmes for partners on dissemination and delivery have been developed and circulated among the team members. The first capacity building training events are expected to be held in May and June. Subsequent training will be done in the third and fourth quarters of the year.



2.3 Ethiopia

2.3.1 Project Structure and partnerships

The N2Africa-Ethiopia national staff is embedded in ILRI, Addis. The national staff consists of the country coordinator, the Field Research Officer/Data Specialist (FRO), the Business Development Officer (BDO) and the Administrative Assistant. All positions are filled.

The N2Africa project was officially launched in Addis Ababa on 27-28 Feb 2014. The launch was held in ILRI and encouraged strong engagement by around 80 participants from across Ethiopia and from other N2Africa countries. The N2Africa-Ethiopia annual planning workshop was successfully held on 15-16 April, 2014 at ILRI Addis campus. A total of 41 participants from national and regional research institutes, Universities, Ministry of Agriculture, ILRI, CAFS, National Soil, Private sectors, and invited guest from ICRISAT and NGOs have attended the conference. The attendance of N2Africa's Gender Specialist (Dr. Amare Tegbaru) ensured incorporation of the gender aspects in activity planning for the coming season and ahead.

N2Africa is implemented at four regions in Ethiopia; at Amhara, Oromia, Benishangul Gumuz and SNNPR (Southern Nations, Nationalities, Peoples Region). In each region, there are 1 - 4 woredas (action sites). The target legumes include common bean (Oromia, SNNPR and B-Gumuz), chickpea (Amhara, Oromia and SNNPR), faba bean (Amhara and Oromia) and soyabean (B-Gumuz and Oromia). The partners with whom N2Africa implements its activities include federal (Ethiopian Institute of Agricultural Research- EIAR) and regional agricultural research institutes (OARI, ARARI, SARI), Hawassa and Bahir Dar Universities. In addition, development agents of the Bureau of Agriculture (BoA) at the project action sites, or grass-root level, are involved. The Menagesha PLC (an emerging private inoculant company), Shayashone consult PLC, ATA (Agricultural Transformation Agency), and potentially, NGOs like ISD (Institute for Sustainable Development) and Oxfam-Ethiopia are also important partners to implement the project.

Over the past few months, N2Africa has been represented at various meetings organized by Compro II, IVCD (integrated value chain development for legumes), CASCAPE projects, Guts Agro Industry Chickpea Product Launch Event. During those meetings, ways for possible collaborations on common goals were explored. For example, the discussion with COMPRO II has continued on establishing inoculant quality control procedures and writing up of a document for this. Also, there have been encouraging discussions with Prof. Tekalign Mamo (special advisor to the minister of the federal Ministry of Agriculture) on various topics, including the potential of the rhizobial biodiversity resources in the country, ways how to promote inoculant technology on legumes and on blending fertilizer especially for legumes.

2.3.2 Research activities

Research activities on chickpea and faba bean from the Bridging phase have been extended into Phase II. An unusual extended period of rainfall delayed crop maturity and harvest, and thus also data collection, cleaning and processing. Chickpea grown in the highlands (Bichena and Jamma at Amhara and Damot Gale at SNNPR) was harvested in January and February 2014. Also faba bean grown in the highlands at Amhara (Adet and Jamma) and at Oromia (Sinana) was harvested late. The field work and data entry for all target crops at the different action sites from the Bridging phase have been now completed. Data is currently being processed.



Figure 2.1: SNNPR and EIAR working groups planning activities for the 2014 growing season during the workshop.



Because the originally planned period to conduct the baseline survey during the Bridging phase coincided with various farm activities during this period, it was decided to conduct the baseline survey in the period January-March 2014. The survey has been conducted over the four regions on designated action sites with appropriate sampling, 100 farmers per region. The data are currently being processed and analysed.

2.3.3 Capacity building

A PhD scholarship is available for Ethiopian nationals to work on 'Understanding host legume x rhizobium strain interactions in common bean and chickpea'. Interviews for the position will be conducted in the second half of May.

As part of N2Africa's plan to help building the capacity of partner institutions to enable smooth implementation of project activities, four 4WD Toyota double cabin vehicles and five Bajaj Motor cycles were purchased. These have been donated to partner institutions and the beneficiary institutions are taking care of the tax exemption processes at the moment.

2.3.4 Sustainable input supply

N2Africa-Ethiopia is developing PPPs (Private and Public Partnerships) to ensure the well-functioning of input and output supply chains and sustain the impact of the project. PPPs can be formed with both public and private partners. To date, potential private partners, working on the priority legume crops inputs and product processing, have been identified. A draft ToR for the PPPs has been made by a consultant and further consolidations have been made by the project staff.

2.4 Tanzania

2.4.1 Project structure and partnership

N2Africa-Tanzania is up and running. The project structure is fully established with potential stakeholders (research, dissemination partners, traders and buyers) mapped. Suitable candidates for the position of Business Development Officer (BDO) and administration assistant have been identified and will soon be interviewed. The position of Data Analyst (DA) has been re-advertised because we have not found a suitable candidate so far. Key equipment (2- 4WD vehicles, computers, GPS, digital cameras and office furniture) are in place. Tax exemption for four project motorcycles has been granted and registration process continues. The installation of a greenhouse at Nelson Mandela African Institution of Science and Technology (NM-AIST) continues and is supposed to be finished by June this year. Basic equipment and supplies for Rhizobiology have been ordered through IITA Nairobi.

2.4.2 Research activities

Research activities were already established under the Bridging Grant. Baseline surveys have been conducted in project areas, with the report for the Northern Highlands area already available. Reports on the other areas will follow soon. The Northern Highlands baseline indicates high (99% of HH) farmer dependence on common bean, for home consumption and income as well as residues used as livestock feed (75% of HH).

BNF technology trials intended to evaluate the response of local, newly introduced and released soyabean varieties to rhizobia inoculation, P application and adaptability to different agro-ecological zones were established in late February at six sites in the Southern Highlands. Field observations indicate high susceptibility of most soyabean varieties to rust, bacterial blight diseases, except for few Seed Co varieties (SAFARI and SPIKE) (**Figure 2.2**), and susceptibility of all varieties to red blotch. In the Northern Highlands, trials were established by two MSc students around Lushoto to evaluate the response of common bean to the application of P and K with and without rhizobia inoculation. Final results are not available yet, but field observations show that bean and indeed other crops are constrained by a combination of nutrient deficiencies including P and K as well as cation imbalances. This calls for a thorough diagnosis of limiting nutrients and correction measures.



Figure 2.2: Soyabean rust disease on evaluated soyabean varieties at Sului-Songea in Southern Highlands of Tanzania (left) and CRS Demonstration plot at Mulangali, Ludewa district (right).

2.4.3 Dissemination activities

Dissemination activities continue in Southern Highlands by partners CRS (through SOYA ni Pesa initiative), Clinton Foundation (CF) (through Anchor Farm Program) and SAO HILL Agriculture, along with the local partner Njombe Development Office, CARITAS Songea and District Extension Offices. CRS and Clinton Foundation have established a total of 95 demonstration plots with more than 3,500



farmers involved. SAO HILL Agriculture is working with over 400 farmers cultivating at least 1 acre of soyabean. The demo plots by CRS and CF aim to show productivity and profitability of different soyabean varieties, their response to P and inoculation in the different agro-climatic conditions of the Southern Highlands. Around the demos, about 1,500 farmers are currently implementing adaptation trials, comparing the performance of local and improved soyabean varieties with and without inoculation and P application. Those adaptation trials are monitored using field books. N2Africa provides technical support on the overall performance assessment in both demo plots and adaptation trials. Field observations up to now seem to point at a large response of soyabean to inoculation but a smaller response to P. Farmers in the Southern Highland of Tanzania commonly use P fertilisers on maize. An accumulation of P in the soil over years could explain the observed low response to P fertiliser. The Southern Highlands potentially thus are a perfect niche for legume-maize rotation with a legume phase not requiring P input.

Womens' development is a key focus of the partners CRS and CF, and more than 60% of farmers who are participating in the demos and adaptation trials are female.

2.4.4 Capacity building

Ten technicians from research institutions ARI Uyole, ARI Naliendele, ARI Ilonga , ARI Makutupola and NM-AIST have been trained on legume technology. Also, Training of Trainers (ToTs) on basic legume technology and on legume disease identification and management was conducted for 20 field facilitators from Njobe Development Office, CARTAS Njombe and 5 extension staff from Songea, Njombe and Ludewa districts. In turn, the trained staff provided training to 90 demo-managers at the respective sites.

Two MSc concept notes (one on rhizobiology and another on legume-livestock intensification) have been developed and advertised among postgraduate students at NM-AIST. Candidates for the topics have been identified and will start their research in June 2014. In addition, a concept note for a PhD student was developed on intensification of Common bean in small farms in Northern Highlands of Tanzania through intercropping and/or rotations. The position has been advertised in local newspapers and through the University.

2.4.5 Sustainable input supply

Currently no rhizobia inoculants are produced locally in Tanzania. Instead, efforts are made to facilitate the registration and import of the well-performing rhizobia inoculants BIOFIX and LEGUMEFIX. N2Africa is partnering with COMPRO to collate field data on inoculation responses available from different initiatives (COMPRO, AGRA, N2Africa, etc.) that will be compiled into a dossier to request for registration. In addition, N2Africa and COMPRO are helping the Tanzania Fertilizer Regularity Authority (TFRA) to develop the standards for rhizobia inoculants for the country including the standard operating procedures (SOP) for quality control.



2.5 Uganda

2.5.1 Project structure and partnership

The project structure of N2Africa-Uganda is in place. The country coordinator is Peter Ebanyat. The business development officer (BDO) started May 1st. The data analyst and administrative assistant have been appointed and will start June 1st. In addition, project equipment such as vehicles, motorcycles and laptops have been purchased.

There are already three core partners for dissemination: Africa 2000 Network Uganda, VECO Uganda, and World Vision Uganda. To address other aspects of institutionalization of legume technology delivery, however, additional partners are needed. So far organizations that are potential are NARO (adaptive research), ZOA (dissemination), Integrated Seed Systems Development and NASECO (production of seed/ dissemination of N2Africa technologies), Uganda National Input and Agro-Dealers Association (input supply systems), Farm Radio International (develop mass awareness programmes of N2Africa technologies). During the launch meeting additional partners for collaboration were identified. Those partners are Kilimo Trust (sharing information on Small Medium Enterprises and value chain studies on major commodity crops in Uganda), Uganda Development Trust (involved in capacity building for market development) and Harvest Plus (value addition to beans and integration in the potato cropping system).

A national planning meeting is scheduled for 19th and 20th of June 2014 to bring together the key actors and to develop a national plan. Once plans are finalized, MOUs will be signed with the additional partners.

2.5.2 Research activities

One of the research activities is to develop variety x inoculant x nutrient management recommendations. High quality inoculants will be imported through the COMPRO II project and will be tested against the locally produced MAKBIOFIXER in the next season. The inoculants will be tested with the newly released soyabean varieties MAKSOY 4N and MAKSOY 5N. Selection of farm fields and characterization in each of the project regions to implement these types of studies will start in June.

Protocols for implementation of these studies are being co-developed with WUR.

In addition, research is conducted to unravel $G_L \times G_R \times E \times M$ interactions for legume production and develop best fit recommendations. Research sites have been selected strategically based on production potential and market access. A baseline survey is being conducted to benchmark the legume systems in the study locations. The baseline survey will enable impact assessment but also guides intervention development. A WUR PhD study is looking at the co-development of legume technologies in two sites with different socio-economic characteristics. Currently, detailed farm characterizations are being conducted to fully understand household characteristics and the possible effects on using legume technologies.

2.5.3 Dissemination activities

In the current season, at least 1200 farmers are reached through field days. Ten demonstration trials were established in Oyam and Aboke with World Vision Uganda. In addition, seven climbing bean demonstration trials were installed in Kapchorwa. In addition, dissemination packages including inoculation and P-based fertilizer for soyabean, gypsum and P-based fertilizer for groundnut and inoculation and P-based fertilizer for climbing beans were distributed.

N2Africa also participated in the research for development platforms under the Humid Tropics programme of IITA. In this context, N2Africa provided technical support in establishing 20 on-farm demonstrations and two trials on improved soyabean/maize and bush bean/maize intercropping



including inoculation and P application in Kiboga and Kyankwanzi districts in Central Uganda this season.

Plans are being made with dissemination partners to reach more than 3000 farmers in the next season (September 2013). Gender issues will be fully taken into account and will be discussed during the planning method which is scheduled for the third week of June 2014. The gender specialist will attend this meeting. Currently, a comprehensive strategy for address gender issues in the legume value chains is being developed.

2.5.4 Capacity building

A candidate for the PhD position in Uganda will be identified in the second half of May. The first MSc students supported by the project will start in September at Makerere University. The second MSC student will be recruited later.

2.5.5 Sustainable input supply

An order has been placed to acquire the newly released soyabean varieties MAKSOY 4N and MAKSOY 5N. The project multiplies seed for NABE 26C to allow for a large number of demonstrations with this variety in the next season.

One of the N2Africa activities is to constitute and facilitate stakeholder platforms for the target legumes. The process of identification of the existing stakeholder platforms on legumes has been initiated in Eastern and Northern Uganda. However, only platforms for cereals already exist. VECO has started to establish a platform for groundnut. At the national level, the Ministry of Agriculture Animal Industry and Fisheries have initiated *The Bean Platform*. Operations in both initiatives still have to be streamlined.

N2Africa-Uganda is also engaging agro-dealer and other last mile delivery networks in supplying legume agro inputs. Audicon Mauritius Biotechnologies is establishing an office in Uganda and will be marketing N bio-fixers by the end of 2014. N2Africa is exploring the possibility of entering a public-private partnership for licensed quality N2 fixing products for both N2Africa and COMPRO II.

3 Tier 1 countries

3.1 DRC

3.1.1 Project structure and partnerships

The first planning meeting of Phase II in DRC took place in Kalambo beginning of March 2014. Launch meetings followed in both south and north Kivu. During Phase II, N2Africa continues to work in the same areas in north and south Kivu where the project was active earlier. Various partners work along the north axis (Bushzira, Miti, Katana, Bugorhe, Birava, Luhihi, and Kalehe), south axis (Kamisimbi, Ikoma, Mulamba, Mushinga and Burinyi) and south-south axis (Rusizi Mwenga Plain-Uvira-Fizi). N2Africa in DRC has further linkages with (1) a DFID funded project, implemented by the Development Economics group of Wageningen University on the effect of access to inputs on adoption, (2) HarvestPlus project (IFPRI), (3) Humid Tropics, CIALCA: IP (Innovation platform on integrating legume livestock systems), and (4) SARDC IITA (Cassava project).

3.1.2 Dissemination activities

To the major activities that are implemented in the current season (B 2014, running from February – August 2014) belong the institutionalisation of N2Africa, and further dissemination of legume technologies and training. During the B 2014 season, partners disseminate N2Africa technologies to over 5000 farmers. In addition, partners have established demonstration trials on legume intercropping in each site.

3.1.3 Sustainable input supply

In total, 7 ha are reserved for seed multiplication, with 3 ha for common bean and 4 ha for soyabean. N2Africa is also working on the commercialisation of legume inputs and outputs. In terms of rhizobiology work strain selection research and inoculant quality control have already started. So far, 73 isolates out of 115 have been screened. For the coming period, research will focus on finding the best rhizobial strains for common bean. A mechanism for sustainable input supply, however, remains an important point of attention for the coming period. The development of this mechanism should involve all actors in the chain. In addition, training in innovation platforms should be strengthened.

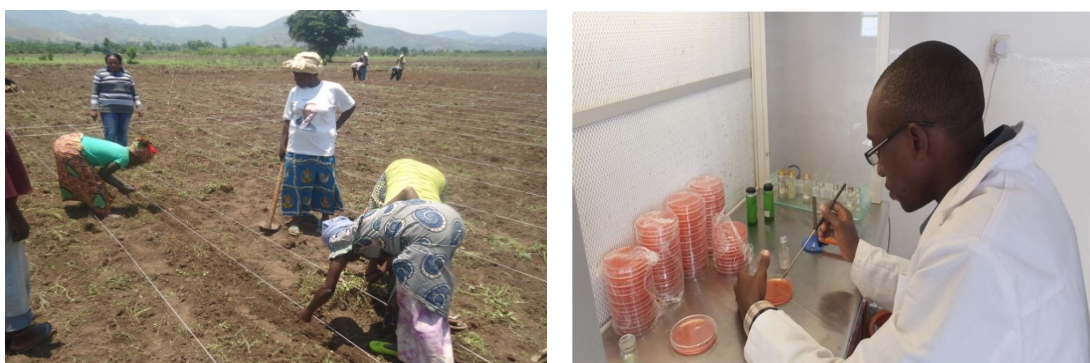


Figure 3.1: Planting of a demonstration trial in South Kivu (left) and rhizobiology work (right).



3.2 Kenya

3.2.1 Project structure and Partnerships

A new model for indirect dissemination is being formulated. Established Action Site partners are maintained through the facilitation of commercial input supply and marketing linkages. In addition, expansion beyond the Action Site is necessary to fully implement leadership by other organizations. Activities are thus no longer confined to the West Kenya Action Area. To date, six new development partners willing to disseminate recommended N2Africa technologies were identified. About half of the Kenya country budget is used for co-investing in indirect dissemination through partners. Funds for capacity building are spent training the new partners in recommended BNF technologies.

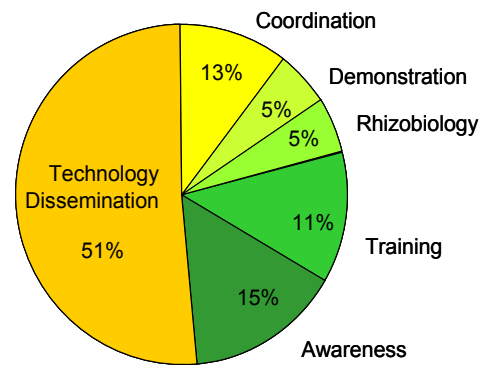


Figure 3.2: Allocation of the Kenya budget in 2014.

3.2.2 Dissemination activities

In between Phase I and Phase II, additional dissemination activities were conducted during the 2013-2014 short rains growing season. In this season, 3476 households received a BNF technology package, bringing the number of on-farm technology tests since project inception to 37,464 households (99.9% of the initial outreach target). The Progressing Farmer program continued as well, providing 950 households with fertilizer and inoculant sufficient for a ½ acre legume enterprise through credit from their membership organizations. These Progressing Farmers together deliver approximately 190 tons of soyabean to the marketing point network.

Technology dissemination is led by WeRATE, an umbrella rural development organization. Protocols were developed and distributed alongside farm inputs donated by private sector partners. Outreach demonstrations and awareness is also conducted, in conjunction with the newly-formed county Departments of Agriculture in Busia, Kakamega, Kisumu, Migori, Siaya and Vihiga whereby BNF technologies and exhibits are included within upcoming agricultural shows. Other goals relating to women empowerment were advanced at a dissemination planning meeting conducted on 25 and 26 April.

3.2.3 Research activities

BNF technology testing also continued for an eighth consecutive season in the N2Africa West Kenya Action Site. It was intended to refine field management using improved legume varieties of soyabean (SB19 and SC Squire) and climbing bean (Kenya Tamu and Rwanda Red) grown in conjunction with Sympal fertilizer and BIOFIX inoculant following current best practice (Figure 3.3). For soyabean, inoculation and fertilizers resulted in 15 additional root nodules plant⁻¹ (+150%) with +41% crown nodulation and +49% red interior pigmentation. Squire outperformed SB19 when both fertilizer and inoculants were applied, producing 2399 (±348) kg grain ha⁻¹. Similar trends were noted for common bean (+17 nodules plant⁻¹) with Tamu outperforming Rwanda Red (2165 kg ha⁻¹ ±664). Production costs of soyabean ranged between \$200 and \$580 per ha⁻¹ depending on management intensity and offered up to \$972 net return (benefit:cost 2.7). Production costs were greater with climbing bean owing to reduced response to inputs and the need for trellises, offering net returns up to \$595 ha⁻¹. Soyabean performed well in the Lake Basin and Midlands, but less so in the Upper Midlands (>1500 masl). Residual benefits from symbiotic N fixation were estimated at 52 and 82 kg N ha⁻¹ for bean and soyabean, respectively. Indeed, both of these legumes hold promise for systems improvement. From now on, farming systems research will continue in west Kenya through the Legume Integration entry point of the CGIAR Humidtropics Program.

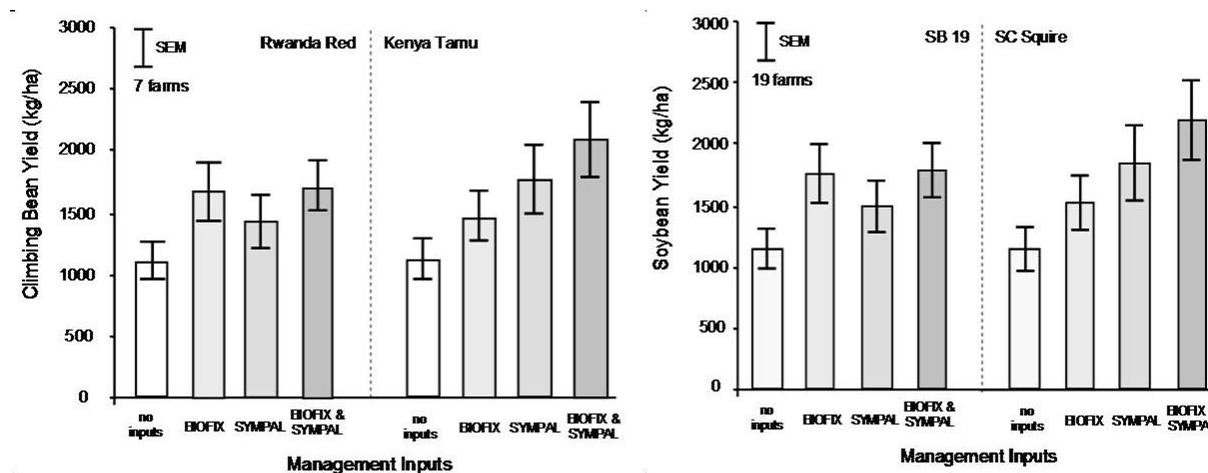


Figure 3.3: Yield of two climbing bean (left) and soyabean (right) varieties in response to inoculant and fertilizer during the 2013-2014 short rains growing season in west Kenya.

3.2.4 Rhizobiology

The current Rhizobiology activities include curation of the 387 rhizobial isolates collected and quality control testing of inoculants by the University of Nairobi MIRCEN.

3.2.5 Sustainable input supply

A sustainable input supply is being achieved by linking input suppliers (MEA, SeedCo) to agrodealer associations (KENADA) and the seasonal orders of large farmer associations including the KESOFA. Commercialization of BNF technologies is led by MEA Ltd., producers of BIOFIX inoculants and Sympal fertilizer. A proposal was submitted to the USAID Feed the Future Program that furthers research and development of Biofix inoculants. Marketing and legume product development is conducted in conjunction with UNIDO and its three recently developed legume processing factories, and with Promasidor, a top-end buyer of soyabean. Other key partners include the Kenya Soybean Farmers Association, SeedCo, the Western Chapter of the Kenya Agrodealer Association (KENADA) and the recently founded Soybean Stakeholder Working Group. In addition, a strategy is underway to support marketing and processing through less expensive “proxies” such as production and distribution of inexpensive, branded grain and seed bags and to assist the UNIDO factories to mass produce their product packages.



3.3 Rwanda

3.3.1 Project structure and Partnerships

Currently, the national project only consists of the country coordinator. The project operates in 3 provinces and 5 districts with 13 action sites. There are four partners in dissemination activities namely, DRD in the districts of Burera, and Gakenke with 4 action sites, CARITAS Rwanda in Bugesera district with 3 action sites, COCOF in Kamonyi district with 3 action sites, and EPR in Kayonza with 3 action sites. There are also informal partners such as Clinton Hunter Foundation and One Acre Fund (Tubura) who have been very actively disseminating N2Africa technologies outside the mandate zones of the project. New contacts have been initiated with One Acre Fund (Tubura), operating in the Western province, to scale up N2Africa technologies in that province. In addition there are linkages with the Post-Harvest and Agribusiness Support project of MINAGRI/ IFAD, to promote the use of PICS bags on grain storage (bean and maize).

3.3.2 Dissemination activities

Current dissemination activities include the production of extension materials, establishment of demonstration plots and seed multiplication of newly released soyabean varieties. Work on extension material includes the design and printing of 5,000 leaflets on how to inoculate soyabean and the design of a booklet on newly released soyabean varieties. Various partners install soyabean demonstration trials, showing five soyabean varieties (four new and one local), both with and without inoculants. Additionally, six demonstration plots on different methods of staking climbing bean and use of inoculants in climbing bean are installed in six sites in Burera and Gakenke districts.

3.3.3 Research activities

Research activities in Rwanda continue with rotational trials with maize in fields where soyabean and bush bean trials were established in the last season (2014 A). In addition, new field trials are ongoing in Northern Rwanda with the aim to explore the possible mechanisms behind the response of climbing bean to low rates of manure application. Research also continues through the work of a PhD student. This research includes field trials with common bean and soyabean on evaluation of the competition for nodule occupancy between introduced and indigenous rhizobia in different fields, and evaluation of the survival of rhizobia strains in soils as affected by variables of environment and management activities. Greenhouse experiments evaluating the population of indigenous rhizobia in soils of Burera, Kayonza, Kamonyi and Bugesera were also done in 2013 (Season 2014 A).

3.3.4 Sustainable input supply

Sustainable input supply is important for the continuation of legume dissemination and adoption of legume technologies. During Phase I, well performing improved varieties of bush and climbing bean were screened, and best performing varieties of soyabean were released in 2013. Partner RAB (Rwanda Agricultural Board) multiplies foundation seeds of soyabean variety SB24 on station, and at the same time maintains all varieties released. Also COCOF multiplies certified seeds of SB24. New contacts have been initiated with Seed co for seed multiplication and dissemination of the soyabean varieties released by N2Africa/RAB (SC Saga, SC Squire, and SC Sequel). Farmer cooperatives multiply certified seeds of SC Squire, SC Saga, and SC Sequel in collaboration with Seed Co.

The Rhizobiology Laboratory established a pilot legume inoculant plant, producing 44,500 (80 gram) packets of inoculant for soyabean and common bean in 2013. At the moment 6 agro dealers from Bugesera, Kamonyi, and Kayonza sell inoculants for soyabean. Next season, inoculants will be sold in more sites. In addition, the project aligned with existing opportunities to scale up activities, such as government policies on importation and distribution of mineral fertilizers in the country, and agro-



dealer networks operating at grassroots level selling agriculture inputs. The Mount Meru Soyco oil processing plant provides a large new market for soyabean producers.

3.4 Zimbabwe

3.4.1 Project structure and partnerships

In January 2014, the University of Zimbabwe, Crop Science Department, took over the coordination from N2Africa from CIAT, the centre which implemented the project during Phase I. With support from Judith De Wolf, the previous N2Africa coordinator for Zimbabwe, and Dr Nelson Mango, the CIAT Country Representative in Zimbabwe, the transition has been seamless.



Figure 3.4: Judith De Wolf and Nelson Mango of CIAT visited the University for an official hand-over of the project, including two project vehicles.

Phase II of N2Africa in Zimbabwe is now coordinated by Dr Regis Chikowo, with support from Mr Isaac Chabata, who was the project's Farm Liaison Officer during Phase I. Activities during Phase II are concentrated in five districts (Goromonzi, Murehwa, Mutoko, Wedza and Makoni), with limited activities in three other districts (Chegutu, Guruve and Mudzi). We continue to closely work with the CADS (Cluster Agricultural Development Services) and AGRITEX as our main dissemination partners. The Soil Productivity Research Laboratory (SPRL) remains the cornerstone for inoculants production and rhizobiology training for our partners. Our private sector partners include the seed companies, Seed-Co and Agriseeds. Due to limited funding, we have lost some partners from Phase I. However, we remain active to re-establish old partnerships and establish new ones, including development of joint project proposals for new funding opportunities, to strengthen the partnerships. We will also use 'windows of opportunity' to present the N2Africa approach at various levels, including nationally organized agriculture stakeholder platforms.

3.4.2 Research activities

Building on work done in Phase I, the project has engaged an MSc student (Simbarashe Mutsvanga) to further explore some of the non-N and P factors affecting productivity of grain legumes on degraded soils. The research will also involve assessing survival of rhizobial populations in fields with different inoculation histories and different crop sequences since the inception of N2Africa Phase I. Currently the student is developing his research proposal. Our full research program will be in place later this year.

3.4.3 Dissemination activities and women empowerment

On-farm demonstrations remain core to our technology dissemination strategy. Phase II in Zimbabwe started with establishment of demonstration sites with limited bridging funds. At least 50 trials were established across the five districts that have been maintained for active engagement.



Figure 3.5: An extension worker explains the benefits of inoculating soyabean to farmers in Makoni district.

The project facilitated availability of soyabean inoculants, P-based fertilizers and gypsum for groundnut growers. The field demonstrations were coupled with field days later in the season, attracting thousands of farmers across the districts. Both CADS and AGRITEX mobilized their structures to ensure effective learning in the different sites. The project has clearly improved the skills of the local extension personnel, who are now better able to explain rhizobiology concepts to farmers in simple terms. Women farmers constitute a large proportion of the participants. Currently, we are planning legume processing training programs, mostly for women, during August/September 2014.

3.4.4 Capacity building

Our budget will enable us to support and train at least 3 MSc students over the next 4 years. The first student is already working on his proposal. Through N2Africa funding, CADS and AGRITEX have trained 49 field extension workers. Our next target is to train district level staff, who will in turn facilitate wider training in N2Africa technologies to include wards within the districts that we cannot reach directly.



3.5 Mozambique

3.5.1 Project structure and partnerships

N2Africa Mozambique phase II is being implemented in close collaboration with many partners. The key partners include Technoserve, CLUSA, IIAM, IFDC, IKURU and many Farmers Associations. These partners use N2Africa legume technologies for dissemination campaigns, demonstration plots, training and awareness creation, with support from N2Africa.

3.5.2 Dissemination activities

Ninety soyabean and cowpea demonstration plots were established in December 2013 and January 2014. The crops are currently being harvested. The demonstration activities were carried out in several districts including Angonia and Tsangano districts in Tete province; Gurue district in Zambezia province; Gondola district in Manica province; and Mogovolas and Rapale districts in Nampula. Groundnut demonstration plots were established in Nampula, whereas the soyabean demo plots were conducted at the other sites. The plots were established to demonstrate the effects of inoculation, SSP application, a combination of SSP and Inoculant, and early and late planting on soyabean and groundnut yields. In total, 48% of the farmers involved in the demonstration plots are female. Soil samples and GPS information were collected from the sites prior to planting. Results of soil analysis from selected sites will be available by June 2014.

The project and its partners distributed small quantities of inputs to farmers and farmers associations across the project areas. Most of the information for the current season from partners is not yet available but the project team distributed 226 kg of peat-based inoculant (Biofix) imported from MEA in Kenya, 1.5 tons of soyabean and 117 kg of groundnut seed. At least 562 farmers have been reached through input distribution. The input packages allow farmers to test the N2Africa technologies on their own farms and under their management and compare the technologies with their current practices.

In collaboration with partners, several training events were conducted across project sites to enhance the knowledge and skills of farmers in legume technologies and crop management in general. The training focused on inoculation procedure, handling and storage of inoculant, variety selection, best time to plant, row spacing, plant population, scouting, disease prevention and control and record keeping. In addition, twelve field days have been organized across project sites during the current cropping season. In total, 428 farmers and stakeholders participated.

3.5.3 Sustainable input supply

IITA seed production programs supplied 18 tons of soyabean seed to seed companies, private and public organizations, and other donor funded projects for distribution to farmers and farmers associations. More than half of this quantity was sold to seed companies and projects including Mozseed Ltd, Phoenix Seeds Ltd, Lozane Farms, Corredor Agro, Technoserve and IKURU. N2Africa established three hectares each of soyabean and groundnut seed multiplication fields to produce seeds for project activities during the 2014/2015 growing season.

3.5.4 Rhizobiology Activities

N2Africa Mozambique lagged behind in the implementation of the Rhizobiology activities during Phase I. However, we plan to complete some of the phase I activities during phase II. During the period under review, the N2Africa Ph.D. student (Amaral Chibeba) in Brazil completed strain isolation work on nodules collected from 15 project sites in Mozambique. About 256 isolates were obtained. Seven isolates from each site were selected for testing in the greenhouse (Figure 3.6). Elite strains will be tested in the field in both Mozambique and Brazil. Genetic characterization of the isolates will be



conducted as part of his research work. MPN counts on soil samples taken from project sites in Mozambique are currently on-going in Ghana, with the assistance of Robert Abaidoo. N2Africa is currently conducting field evaluation of inoculants imported into Mozambique for use by farmers in the 2013/2014 season.



Figure 3.6: Amaral Chibeba (PhD student) harvesting greenhouse strain testing trial.



3.6 Malawi

3.6.1 Project structure and partnerships

The National Coordinator, Lloyd Phiphira, was recruited and started work on February 10, 2014. The N2Africa office is based at IITA Malawi offices at Chitedze Research Station. The impact districts are Lilongwe, Dedza, Ntcheu, Salima, Dowa, Kasungu and Mchinji. The National Coordinator visited all seven N2Africa impact districts in Malawi.

Many partners from Phase I continue to work with N2Africa. The Department of Agricultural Extension Services (DAES) in the Ministry of Agriculture and Food Security works on disseminating N2Africa technologies and interventions. The Department of Agricultural Research Services (DARS) in the Ministry of Agriculture and Food Security works on inoculants research and supplying inoculants to farmers. Catholic Relief Services (CRS) and World Vision International (WVI) work on promoting soyabean production and use of inoculants by farmers. National Smallholder Farmers Association of Malawi (NASFAM) works on promoting legumes production and marketing. Finally, the Association of Input Suppliers of Malawi works on legume seed selling and produce marketing.

3.6.2 Research activities

A MSc research titled 'Evaluation of the Efficacy and Competitiveness of Indigenous Rhizobia on Soybean Nodulation, Nitrogen Fixation and Growth' was recently completed by Joseph Mhango. The study identified three local rhizobia strains for soyabean. The strains are potential candidates for further evaluation. In addition, a study to evaluate the rotational impact of legumes on following maize yields soil fertility was initiated in March 2014. Collection of yield data and soil samples for analyses is currently underway and a report on this study will be produced later on.

3.6.3 Dissemination Activities

Demonstration plots were established in Lead and Satellite Farmers' fields in all N2Africa impact districts. Technologies that were being demonstrated included amongst others improved legume varieties and use of inoculants. Extension workers from the Department of Agricultural Extension Services, Catholic Relief Services and World Vision International facilitated the demonstration plots and organized field days where the technologies and interventions were show-cased. Agricultural extension workers who were trained in April (see below) on harvesting and post-harvest management of legumes are now training farmers on similar topics. So far, 43 of the 67 lead farmers trained, are female.

3.6.4 Capacity building

28 Extension Workers from Salima, Dedza and Ntcheu in the Department of Agricultural Extension Services under the Ministry of Agriculture & Food Security were trained in harvesting and post-harvest management of legumes. The workshop was held from 2-5 April 2014 in collaboration with the Department of Agricultural Research Services (Crop Storage). In addition, six technicians and three Research Attendants from Chitedze, Bvumbwe and Lunyangwa Research Stations were locally trained on inoculant production and quality control.

3.6.5 Sustainable input supply

The government owned Rhizobiology laboratory produced about 13,000 50g sachets of Chitedze inoculants. The demand for inoculants is quite high and organizations sold the inoculants mainly to



farmer organizations during the 2013/2014 season. DAES, WVI, CRS, NASFAM and Clinton-Hunter Development Initiatives are facilitating the farmer to farmer pass-on program of legume seed in all N2Africa impact districts.



Appendix I – Master Plans

Please note that these plans are in advanced draft and need to be finalised before they are published in full.

Rhizobiology Master Plan

The Rhizobiology Master Plan consists of four main activity clusters: 1) Bio-prospecting, 2) Identification of elite strains, 3) Identification of elite inoculant products and 4) Development of standard operating procedures. The Rhizobiology Master Plan interacts logically with the other Master Plans, in particular with the Agronomy Master Plan. New inoculant strains will be fed into the Dissemination Master Plan as part of the promotion and dissemination of robust inoculant technologies through private inoculant companies.

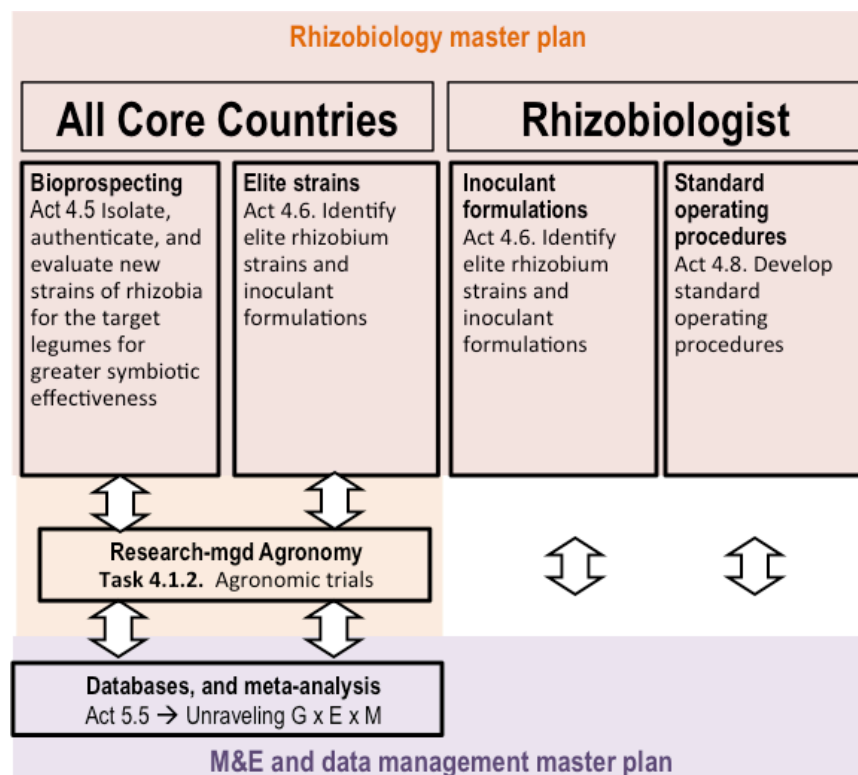


Figure 7. Structure of the Rhizobiology master plan.

Agronomy Master Plan

The Agronomy Master Plan consists of four interlinked activity clusters, cutting across the R&D (Research and Development) and D&D (Delivery and Dissemination) components of N2Africa (Figure 8). The **Diagnosis** activity clusters aims at understanding the biophysical or abiotic (soil fertility, weather) and biotic (pests and diseases) constraints to enhanced legume productivity. The **Researcher-managed Agronomy** activity cluster aims to identify, understand and solve specific constraints for which there is not enough existing information to propose best-bet interventions that have a high chance of alleviating these constraints. The **Demonstration** activity cluster co-evaluates a portfolio of *best-bet* options together with farming communities to tackle constraints to legume intensification within best cropping systems. The **Adaptation** activity cluster evaluates how individual farming households adapt selected best-bet options and how farmer management practices and environmental factors affect their performance. This step also provides the framework for translating



best-bet options to *best-fit* options, with the latter referring to specific biophysical and economic conditions and farming resources available to individual households.

The Agronomy Master Plan interacts logically with the other Master Plans. While the D&D component is directly related to N2Africa-led dissemination, results from the Agronomy Master Plan will be fed into the Dissemination Master Plan where partners will promote and disseminate robust N2Africa technologies, partly through the establishment of public-private partnerships.

The Agronomy Master Plan also interacts with (i) the Rhizobiology Master Plan, through integration of the most effective rhizobium strains and their delivery mechanisms, (ii) the Communication Master Plan, through the development of communication and awareness creation tools and approaches around the best N2Africa products, and (iii) the Partnership Platform Master Plan, through the integration of N2Africa within platform activities.

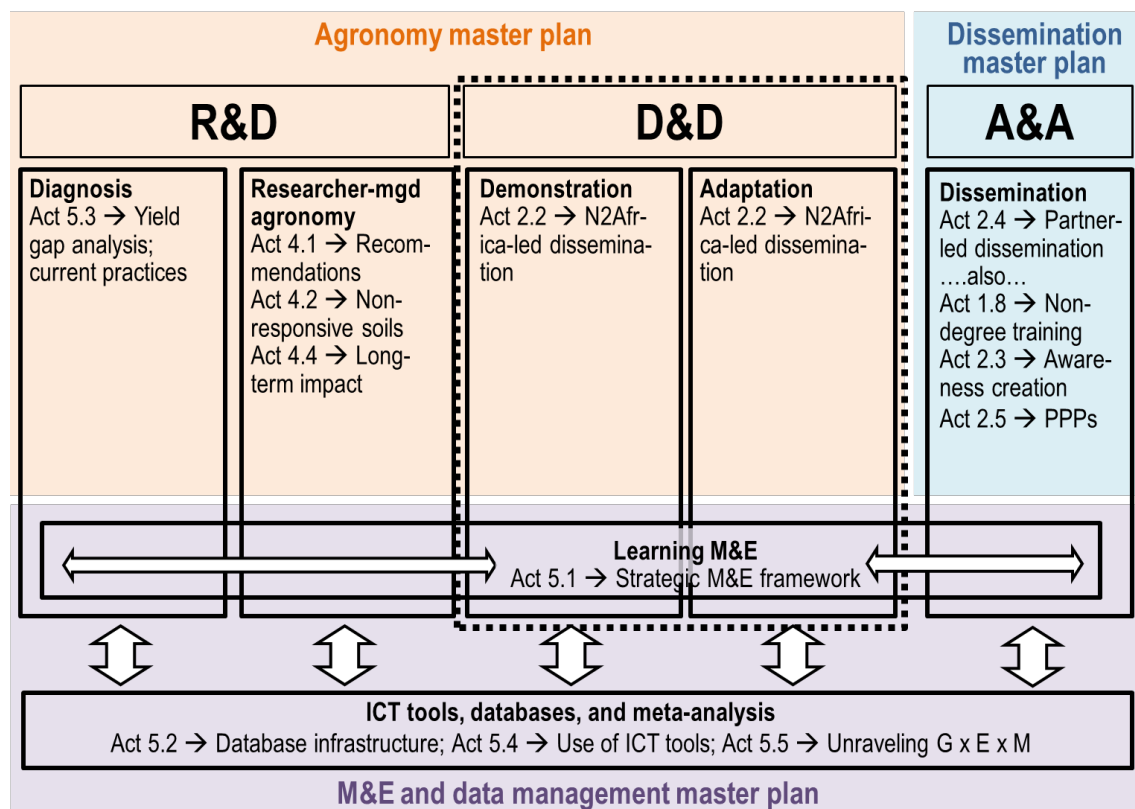


Figure 8. Content of the agronomy, M&E and data management, and dissemination master plans with specific reference to the activities as per the Results Framework of N2Africa phase II. The different activity clusters are delineated in boxes with the D&D activity clusters (surrounded in dotted lines) being the entry point of the agronomy master plan.

Dissemination Master Plan

The Dissemination Master Plan consists of three interlinked activity clusters, housed within the A&A (Adaptation and Adoption) component of N2Africa (Figure 9). The three activity clusters are Partner Capacity Building, Informal dissemination, and Private-Public Partnerships. **Informal dissemination activities** include interventions where partners take the lead in promoting and disseminating N2Africa technologies with the latter playing mainly a technical backstopping, M&E, and capacity building role. **Private-public partnerships** will operate within the framework of formal, multi-stakeholder agreements with clear roles and responsibilities and commitments, both financial and technical. Both the above dissemination models and those included in the D&D component of the Agronomy Master



Plan will be back-stopped by **partner capacity building** or non-degree-related capacity building activities in relation to, amongst others, legume production, value addition, and marketing.

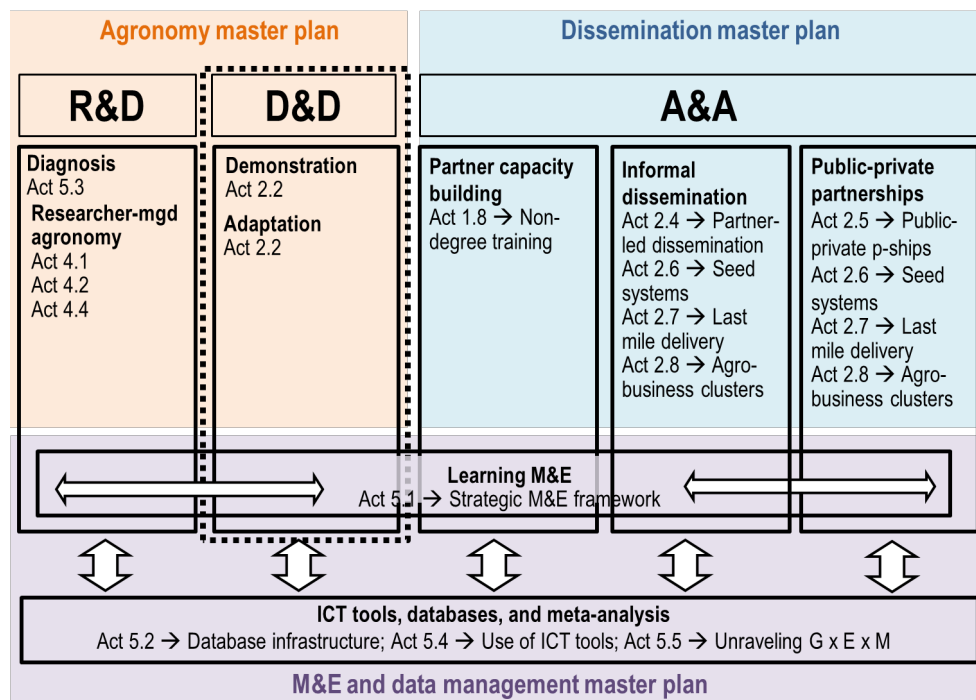


Figure 9. Content of the Agronomy, M&E and Data Management, and Dissemination master plans with specific reference to the activities as per the Results Framework of N2Africa phase II. The different activity clusters are delineated in boxes with the D&D activity clusters (surrounded in dotted lines) being the entry point of most N2Africa-led and partner-led activities.

Platform Master Plan

The Platform Master Plan consists of four interlinked activity clusters: Map existing networks, Platform Initiation, Platform Facilitation Leading to Actions, and Monitoring. **Existing networks are mapped** to avoid duplication of efforts. Existing multi-stakeholder forums will be mapped to assess their suitability for N2Africa purposes. Where existing platforms exist, N2Africa will prefer to engage in existing initiatives rather than setting up parallel structures. **Platform initiation** will include mapping of key actors and gathering those actors. Questions on a location or commodity focus and the scale of the platform (nested platforms, regional, or local) also need to be considered in platform initiation. In addition, we need to think about who facilitates those platforms (NGOs?) and how they will be financed (per diems?). Finally, do we want to take actions at the level of production, trade, or policy? **The Platform facilitation will lead to the following actions** 1) identification of key issues for each value chain (some generic issues), 2) identification of VC constraints, 3) design and implementing actions via rolling action plan and 4) follow up of action plan to ensure progress. When we start **monitoring the platforms**, we need to think about the following: How to assess success? Number of business arrangements emerging from platforms? Sale volumes? Number of sector issues addressed?

The Platform Master Plan interacts logically with the other Master Plans. This is because Stakeholder Platforms will form a useful forum for integrating work across the program. As well as acting as action platforms to stimulate organizational innovation, Stakeholder Platforms will provide the space for key stakeholders to learn about what is going on across the project and to adjust activities to ensure integration across key project components: agronomy, gender, nutrition, rhizobiology, dissemination, communication. As such the Stakeholder Platforms will play a dual role: action platforms and knowledge platforms.



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
18. Adaptive research in N2Africa impact zones: Principles, guidelines and implemented research campaigns
19. Quality assurance (QA) protocols based on African capacities and international existing standards developed
20. Collection and maintenance of elite rhizobial strains
21. MSc and PhD status report
22. Production of seed for local distribution by farming communities engaged in the project
23. A report documenting the involvement of women in at least 50% of all farmer-related activities
24. Participatory development of indicators for monitoring and evaluating progress with project activities and their impact
25. Suitable multi-purpose forage and tree legumes for intensive smallholder meat and dairy industries in East and Central Africa N2Africa mandate areas
26. A revised manual for rhizobium methods and standard protocols available on the project website
27. Update on Inoculant production by cooperating laboratories
28. Legume Seed Acquired for Dissemination in the Project Impact Zones
29. Advanced technical skills in rhizobiology: East and Central African, West African and South African Hub
30. Memoranda of Understanding are formalized with key partners along the legume value chains in the impact zones
31. Existing rhizobiology laboratories upgraded



32. N2Africa Baseline report
33. N2Africa Annual country reports 2011
34. 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



Partners involved in the N2Africa project

