

<b>Name of project:</b>	Putting Nitrogen Fixation to Work for Smallholder Farmers in Africa – N2Africa
<b>Donor:</b>	Bill & Melinda Gates Foundation (BMGF)
<b>Implementing organization:</b>	Wageningen University (the Netherlands) together with CIAT-TSBF and IITA
<b>M&amp;E organization:</b>	CIAT-TSBF / Wageningen University
<b>Project start date:</b>	Oct 2009
<b>Project end date:</b>	Oct 2013
<b>Geographic coverage: (countries)</b>	DRC, Rwanda, Kenya, Ghana, Nigeria, Malawi, Mozambique, Zimbabwe
<b>Status of impact assessment</b> (when are/were baselines to be conducted, what quantitative or qualitative assessments have been done, etc.)	A broad socio-economic baseline survey to allow impact assessment is currently being conducted. Other M&E tools (detailed farm characterizations, nutrition studies, income studies, gender studies) are currently being designed and their implementation is being planned.
<b>To what extent is the project targeted to women?</b>	The project acknowledges the importance of women in agricultural production, household food security and income. It recognizes that in aiming to ensure long-term sustainable impact, it is of crucial importance to explicitly address the needs of women farmers, processors and marketers and it is essential to develop specific strategies for meaningful inclusion of women in project activities to ensure women benefit from the project. Most of the grain legumes are grown by women farmers in many of the places where the N2Africa project works – this gives opportunities to the N2Africa project to positively affect their lives. This is recognised in the proposal, but the project document lacks a thorough gender analysis and the strategies for engaging women need to be elaborated (that go meaningfully beyond the target numbers or percentages).
<b>Does this project aim to directly build assets, or would increases in assets be a secondary effect</b> (e.g. project aims to increase incomes, but people might then invest in assets)?	The project aims to increase agricultural production and subsequently improved nutrition and increased income, so it indirectly contributes to build assets.
<b>What kinds of assets might have observable changes</b> (for men or women)?	<b>(For each type of capital below that you think your project may affect, please mention the kinds of assets that may be affected)</b>
· <b>Natural capital</b> (e.g. land, water):	Direct contribution to increased soil fertility and improved land use efficiency through legume cultivation.
· <b>Physical capital</b> (e.g. housing,	Higher income from sale of legume grain could lead to a

equipment, cell phones):	higher physical capital, depending on how the income is spent.
· Financial capital (savings, credit, remittances):	As above, a higher income from the sale of legume grain may lead to more financial capital.
· Social capital (e.g. group membership, connections, either within communities or with outsiders):	A better social cohesion could be a side effect of the project activities. It is however not a direct goal.
· Human capital (e.g. education, skills, health, nutritional status):	Improved farming skills and better health as a result of a higher intake of plant proteins. Indirectly, a change in other capitals is also likely to affect human capital. In addition, the project has an explicit capacity building component, ranging from indeed farmers' training to MSc and PhD level.

**Brief abstract about the project—what is it trying to achieve, what is the strategy being used for integrating gender into project implementation and in M&E/impact evaluation? (max 1 page)**

Introduction

The N2Africa Project is a research and development partnership program that develops, disseminates and promotes appropriate N2-fixation technologies for smallholder farmers focusing on the major grain legumes (soya beans, groundnuts, common beans, cowpeas). The project operates in 8 African countries over 4 years (Ghana, Nigeria, Rwanda, DRC, Kenya, Malawi, Mozambique, Zimbabwe). The N2Africa project is funded by 'The Bill & Melinda Gates Foundation' through a grant to Wageningen University, the Netherlands. The project is implemented by many partner organisations organised through CIAT-TSBF and IITA.

Project Description

Agricultural production in most parts of sub-Saharan Africa is dominated by smallholder farming systems of low productivity. Although inclusion of legumes has the potential to improve system productivity, often less than 5-10% of cultivated land is currently planted with field legumes. Grain legumes are often included as minor intercrops in fields of cereals and other staple crops. This is because smallholder farmers operate under diverse socio-ecological constraints that limit the productivity of legumes and farmers' ability to scale up the integration of legumes into their farming systems. In the N2Africa project, legumes are used as a basis for improving cropping systems and household wellbeing, increasing inputs from biological nitrogen fixation (BNF) that will link family protein supply and farm nitrogen inputs directly to the atmosphere, will improve soil health and will increase household incomes. The expected project outcomes will be:

- Diversification of N2-fixing legume species that are integrated into smallholder farming systems in sub-Saharan Africa;
- Expansion in cultivation of grain and forage legumes, greater productivity in legume-based farming systems, and enhanced family incomes;
- Selection of efficient rhizobial inoculant strains and improved grain legume varieties with enhanced BNF capacities adapted to various environmental stresses;
- Establishment of a state-of-the-art laboratory and culture collection of elite strains of rhizobia for target legumes; and
- Establishment of rhizobial inoculant production in countries of West, East and Southern Africa, through partnership with the private sector.

### Project Design and Implementation Plan

We will use a step-wise approach to deployment of legume and inoculant technologies with strong BNF capacity, focusing initially on 'quick-wins' – employing existing proven technologies. This will allow us to accelerate the process of engaging with farmers and extending technologies from the very start of the project. In parallel, an adaptive and applied research component will be initiated, focusing on screening legume genotypes (both grain and forage) with improved BNF potential and on selecting better rhizobium strains for use in inoculants. Early in the project, we will initiate activities to strengthen human capacity at all levels from farmers and their association officers, development workers, field and laboratory technicians, scientists and policy makers and necessary accompanying infrastructural capacity including BNF laboratories, inoculant production facilities and dissemination systems. Academic training at MSc and PhD level will focus on research to address important knowledge gaps and to develop 'second-generation' legume and inoculant technologies that may be suited specifically to particular agro-ecological regions or based on grain and forage legumes that are currently of secondary importance. The project will pursue the following five objectives:

1. Establish a baseline of the current status of BNF, identify farm enterprises and niches for targeting N<sub>2</sub>-fixing legumes in the impact zones, and establish mechanisms for monitoring and evaluation (M&E) and impact assessment;
2. Selection of multi-purpose legumes (food, fodder, stakes, and soil fertility management) for enhanced BNF and their integration into farming systems;
3. Select superior rhizobia strains for enhanced BNF and develop inoculum production capacity in sub-Saharan Africa through collaboration with private sector partners;
4. Deliver legume and inoculant technologies to farmers throughout sub-Saharan Africa;
5. Develop and strengthen capacity for BNF research, technology development, and application

### Vision of success (5-10 year timeframe)

To raise legumes yields by 954 kg/ha, to increase average BNF by 46 kg/ha, and to and increase average incomes by \$465, benefiting 225,000 households (1,800,000 individuals) from Nigeria, Ghana, DRC, Kenya, Rwanda, Malawi, Mozambique, and Zimbabwe.

This target will be achieved through (a) improved adoption and utilization of legume-based technologies tailored to specific niches; (b) greater use of high-quality legume seed inoculants; (c) strengthened partnerships for sustainable agriculture and soil health in key countries of sub-Saharan Africa; (d) enhanced capacity for research, teaching and agricultural extension in BNF and legume-based farm enterprises. The resulting improvement of crop yields will lead to significant betterment of human nutrition and farm income for smallholder farmers in the target regions.

### Gender and M&E

With regards to strategy used for integrating gender into project implementation, the projects needs to further develop this. Shortly, a gender consultant will be engaged to assist the project in gender analysis and further develop strategies and tools to ensure the implementation of a meaningful gender strategy.

M&E: a baseline survey has been designed and is being implemented. An elaborate M&E plan is being developed.