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ALLIANCE FOR A GREEN REVOLUTION IN AFRICA

# Rapid Assessment: Improving smallholder productivity through the adoption of climbing bean varieties and associated agroforestry benefits in four districts in Rwanda

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FINAL REPORT





# Executive Summary

## INTRODUCTION

Climbing beans are an important staple food and cash crop in Rwanda, particularly in the northern region which is recognised as an important breadbasket of the country. Climbing beans are also noted to have potential in improving soil fertility, alleviating protein malnutrition and improving food security and poverty among a rural population.

The three-year Climbing Bean Project was commissioned by the Alliance for a Green Revolution in Africa (AGRA) through its Soil Health Program (SHP), Soil Health Extension Sub-program (SHEP) and falls within Rwanda's National Bean Programme. The Project, which was started in 2010, targeted 25,000 smallholder farmers over three years in four districts of Rwanda.

The Project, which aims to improve productivity and incomes among smallholder farmers through the promotion of improved climbing bean production in Rwanda, has the following three key objectives:

- a) To promote the growing of high quality climbing varieties by assisting farmers to access improved seed adapted to their local environments; assist farmers to grow agro-forestry plants for stake production, practice appropriate staking and appreciate the importance of N-fixing agro-forestry species in soil health improvement;
- b) To improve manure production and promote the adoption of modern integrated agronomic management practices (including fertilizer application) that enhance soil productivity; and
- c) To support farmers in identifying strategic and profitable markets for commercialization of beans to enhance their income.

During the first year of implementation of the project, the Ministry of Agriculture underwent a major restructuring, which involved the merger of some of its agencies to form the Rwanda Agricultural Board (RAB). The agencies incorporated in RAB include the Rwanda Animal Resources Development Authority (RARDA), the Rwanda Agricultural Development Authority and the Rwanda Agriculture Research Institute (ISAR in its French acronym). The timing of the restructuring had a disruptive effect on the implementation of the Climbing Bean Project, which was initiated through ISAR before falling directly under RAB.

The Project has been managed since its inception by Dr Tenge Ngoga, a RAB Soil Scientist, who was originally part of ISAR prior to the formation of RAB. Dr Rebbie Harawa has managed the Project within AGRA.

The Project has, in the course of its implementation, involved many partners, both public and private. It has generated valuable lessons and faced many challenges. This study is, therefore, an external rapid assessment of its performance, to document early outcomes and lessons learnt and to make recommendations on the way forward for the project.

AGRA has appointed Golder Associates Africa (Pty) Ltd (Golder Associates) to conduct the rapid assessment with the following key areas of focus:

- Assess the Project structure and delivery mechanisms and determine whether or not they are adequate to realize the intended objectives;
- Determine to what extent the Project implementation processes have delivered the planned outputs, and whether these are beginning to realize the expected outcomes;
- Capture the opinions of the Project key stakeholders on the design, implementation structure and what went well, or not so well, in the Project management;



- Identify critical factors (such as land consolidation, national and local engagement, farmer groups, technology demonstrations, agro-dealers, seed companies, among others) that may have supported or impeded the Project in realizing its expected outcomes;
- Assess and document lessons learnt in the course of Project implementation, and highlight success stories from the Project beneficiaries;
- Assess the efficacy of the different models utilized by the Project, for instance, in scaling-up integrated soil fertility management practices, financing mechanisms for farmers to access inputs (seeds and fertilizers), and the marketing support initiatives; and
- Identify key challenges and gaps that may affect the attainment of the Project objectives and recommend actionable interventions that should be taken to improve the situation.

The findings of this assessment were derived through the collection of both primary and secondary data which included a desktop review of relevant Project related reports and interviews with key stakeholders involved in Project management and Project implementation and with Project beneficiaries including farmer representative groups such as farmer cooperative members and individual leading farmers involved in the Climbing Bean Project. The Project was implemented in five Districts of Rwanda, namely Musanze and Burera in the northern districts and Bugesera, Ngoma and Nyagatare in the southern districts (Figure 1).

Field work for this rapid assessment took place in Rwanda from 15 – 22 August 2013.

### PROJECT PROGRESS AND ACHIEVEMENTS

It is the view of the rapid assessment team that despite initial difficulties during Project implementation, associated with restructuring within the Ministry of Agriculture, the Project has, under the circumstances, made remarkable progress. The interest and enthusiasm shown by climbing bean growers and their communities for the Project was abundantly clear in all our focus group meetings and interviews. The RAB staff involved in the Project, which both assisted with the assessment or with whom we had discussions or interviews showed remarkable enthusiasm for the Project and are committed to its objectives.

Thus far the Project has achieved the following targets set at the start of the Project (as reported):

- **Objective 1: To improve farmers' access to superior climbing and bush bean varieties adapted to their local environments in selected sites in Musanze (climbing), Bugesera, Ngoma and Nyagatare (climbing and bush) districts in Rwanda**
  - 48.7 tons of foundation bean seed for multiplication (1 ton for each variety) was produced and distributed for secondary multiplication. The target of 30 tons over a period of 3 years has, therefore, been exceeded;
  - 806 farmers directly trained each year on seed multiplication and business skills which is in excess of the target of 600 farmers trained over a period of 3 years;
- **Objective 2: To demonstrate the benefits of integrated soil fertility management practices including phosphorus fertilizer micro-dosing, manure application, lime and rhizobium inoculum applications that enhance bean productivity**
  - 722 MT of bean seed is produced by RADA, COAMV, BAMPOREZE, and contract secondary multipliers each year of the Project implementation;
  - 50 800 agro-forestry seedlings were planted in the 3 years of the Project, exceeding the target of 1000 seedlings set;
- **Objective 3: To assist farmers to produce, practice appropriate staking and appreciate the importance of N-fixing agroforestry species in soil health improvement**
  - About 852 (target of 400 set) demonstration gardens were planted and visited by farmers in 3 years.



▪ **Objective 4: To assist farmers to generate income through strategic and profitable commercialization of beans**

- 769 farmers (target of 600 set) were trained on commercial production of climbing beans by the end of year 3.

The nature of the assignment did not provide for a detailed survey to verify in quantitative terms each of the reported achievements against the set targets. However, based on the Project periodic reports and the interactions with the Project team, as well as through interviews with key informants, the assessment team confirmed that activities that may have led to the identified targets had indeed been implemented.

During discussions and consultations with farmer groups and associations, it was clear from the feedback received that:

- The Project has been positively received by the farmers in the farmers associations and cooperatives that had been targeted and a request for its expansion was aired at all the Focus Group Discussions;
- The Project has increased awareness about the benefits of the improved climbing bean seed;
- The Project's demonstration units have provided a "show window" to surrounding farmers and communities; and
- An indication of the Project's success is, to some extent, reflected in the very high and growing demand for improved climbing bean seed varieties experienced for the 2013/2014 growing seasons. For example, the head of the RAB's Northern Agriculture Zone Division reported that provision for 123, 000ha (6 000t of seed) of improved climbing bean to be grown in the Northern Zone. This seed is being distributed through organisations such as the Imbaraga Farmers Federation and private sector distributors such as Win-Win Agri-Tech Ltd. who use a seed multiplication programme in the main growing areas. This programme is based on RAB "foundation" seed and a rigorous seed inspection and certification programme undertaken by RAB seed inspectors;
- The training, which has been focused on seed multiplication and improved agriculture practices, has been achieved through field days, farmer exchange visits, training of local government agronomists (training the trainers) and by example on the selected demonstration units. Our discussions and interviews with the cooperative leaders pointed to the need for more training and capacity building in each of the leadership/management tasks, such as planning, budgeting, financial controls, reporting and production coordination. However this interest in and support for the Project's training program has resulted in widespread request from growers and service providers (such as local government Agronomists) for expanded and intensified training in the technical and institutional aspects of the Project;
- The Project's agroforestry programme has been successful in that all targeted farmers have been supplied with planting material and the value of the plants for staking has been widely recognised by these farmers and surrounding growers. The need to expand the programme through the establishment of agroforestry nurseries closer to the major climbing bean growing areas was regularly raised by farmers during the Focus Group Discussions.

It was evident from all the stakeholder meetings and farmer interviews that the Climbing Bean Project has achieved some success and has been well received by all beneficiaries. The enthusiastic and effective involvement of a wide range of role players and organisations in the roll-out of the Project is also noteworthy.

The range of services, including the distribution of improved seed, the soil fertility improvement program, the promotion of agro-forestry primarily for stake production and the related training programs have all had varying degrees of success and have all had positive impact on the Project participants.

The use of demonstration plots to illustrate and test the components of the Project has been successful and popular with participants, proving its value as a valuable tool in transferring technology and imparting new ideas and approaches in agriculture.



### KEY CHALLENGES

#### Establishment of the Rwandan Agricultural Board

The implementation of the Project has been significantly impacted by the restructuring of the Ministry of Agriculture and the establishment of the Rwandan Agricultural Board (RAB). The Consultants believe the risks associated with this restructuring were underestimated. Nevertheless, the Project has, under the circumstances, made remarkable progress.

#### Project management and implementation

The issues identified during the assessment in regard to Project management and implementation included:

- Lack of Project management capacity and/or experience in managing a Project of this nature which entails multi-stakeholder involvement and coordination;
- Inadequate financial management and oversight capacity within RAB;
- The communication between RAB, local government and all partners involved in the Project could be more coordinated and streamlined;
- There appears to be a lack of focused monitoring and evaluation of the Project by RAB (because of the many different projects run from within the Institution);
- There appears to be lack of a dedicated database for the Project; and
- There is a lack of a simplified and common reporting system.

The Project may also have, to an extent, been negatively impacted by bureaucratic processes as the RAB Project Manager reported that the following be considered to improve Project management and implementation moving forward:

- Project finances should be managed differently from the technical aspects of the Project so as to allow sufficient time to the project Manager to focus on other key aspects of the project;;
- Government financial, procurement and administration procedures should be shortened where possible; and
- AGRA (or another donor) could provide additional training support to the RAB Monitoring and Evaluation team to help the Project coordinator to follow up on planning, implementations and reporting activities.

#### Project staffing and capacity

It was noted though that all RAB staff have other commitments within the institution and are unable to give the Climbing Bean Project their full attention. Their capacity to implement all components of the Project timeously has been negatively impacted at all levels in the Project – from overall Project management through to the direct support to farmers at Local Government level. Discussion with farmer groups on the ground as well as in interviews with representatives from key role-players and institutions, confirmed Project management constraints and staff capacity constraints identified in all the Project progress reports and interim reports. The inclusion of an additional District (Burera) to the four focus areas (Musanze, Bugesera, Ngoma and Nyagatare) appears to have exacerbated the capacity constraint issue.

### KEY RECOMMENDATIONS

#### Project extension

The interest and enthusiasm shown by growers and their communities for the Project was abundantly clear in all our focus group meetings and interviews. However the benefits of the Project's interventions will not be transferred in an effective and sustainable way in just a few years and we strongly recommend that the



program be extended by a further three years to 2016. This extension would not only consolidate the successes achieved with the existing programme and all its components but would also allow for the incorporation of the recommended additional or modified components of the Project.

### Project management and implementation

To address the key challenges identified, a more thorough assessment of Project managers, the introduction of additional Project management support tools and more extensive training of Project Accountants is recommended. Each of these is discussed briefly below:

- **Project manager assessments:** There needs to be recognition that Project management is a skill where some and not all excel. Experience in a technical area also does not translate into experience in Project management and a more rigorous assessment of an individual's Project management capacity and capability should be given prior to Projects being allocated. A Project Manager Assessment based on accepted and standard criteria could be used to evaluate prospective Project managers in future in order to determine whether their experience is appropriate given that particular Project challenges;
- **Project classification tool:** A Project Classification tool can be used to assess a Project's complexity according to the following criteria (for example):
  - Number of stakeholders involved;
  - Whether the Project is international, national or local;
  - The experience of the Project manager; and
  - The Project budget and Team size.

The Project classification tool could be aligned with the Project assessment above so that prospective Project managers are ranked according to the highest Project classification level appropriate for their experience.

- **More extensive training on financial management:** It is clear from the AGRA audit report as well as from an interview with the Project accountant that training by AGRA may not have been sufficient for the type of financial control and management expected.

### Project staffing and capacity

The RAB staff involved in this Project, who either assisted us with our assessment or with whom we had discussions or interviews, all showed remarkable enthusiasm for the Climbing Bean Project and are committed to its objectives.

It is recommended that RAB give consideration to the prioritisation of commitments of key personnel to allow them more time to focus on the Climbing Bean Project or, better still, to allow certain key team members to be free of all other duties and concentrate entirely on the Project.

It is also recommended that the focus of the extended period of the Project should be on modest expansion while consolidating on the quality and content of service, particularly with delivery of inputs and the training programmes.

### Training programs

It was clear from the focus group discussions and farmer interviews that farmers involved in the Project had 'bought-in' to its objectives through the training and extension provided. Farmers are enthusiastic to get more involved and receive more training to improve both their business and farming skills. The noted benefit of working together to assist each other in achieving production goals and learning better farming practices appears to have been stimulated by the Land Consolidation initiative and the Crop Intensification Program.

It is recommended that, despite the successes achieved to date, the Climbing Bean Project should:



- Consider applying resources to assist farmer organisations in building their leadership and management capacities and gaining experience in their implementation;
- Extend the training program to reach all of the targeted role-players some of whom have not yet benefited from the program;
- Consider the expansion and intensification of the training program with the inclusion of marketing opportunities and marketing linkages, financial (commercialisation) aspects of bean production and the involvement of agro-dealers;
- Include further training of local government agronomists (training the trainers) as part of any training program extension;
- Continue with study tours to other climbing bean growing areas for farmers within the Project who have not yet participated in these tours; and
- Consider more extensive training for Project accountants on Project financial management and reporting.

### Staking

The agro-forestry component of the Project has been successful in that the distribution and establishment of planting material has raised awareness of the benefits of the selected agro-forestry species for staking material, for erosion protection, and as a nutritious livestock feed. However, as the climbing bean programme expands, farmers are experiencing increasing difficulty in accessing adequate staking material. This is causing a serious “bottle-neck” to achieving the projected expansion of the Climbing Bean Project specifically and the overall climbing bean programme. It is therefore recommended that:

- The Project considers providing additional support to the agroforestry initiative in order to make suitable planting material available to growers. This could be achieved by funding the establishment of additional agroforestry nurseries in each of the main climbing bean growing Districts and recommending to RAB that the staffing of the Agroforestry initiative be scaled up to meet this growing need;
- Napier grass planting material is distributed together with *Leucaena* and *Calliandra* to provide a short-term solution to the staking challenge while the slower-growing *Leucaena* and *Calliandra* establish themselves on the farms;
- Alternative methods of staking e.g. stringing on trellises; be further investigated and demonstrated; and
- Alternative synthetic material for stakes, such as extruded plastic should be investigated. This investigation should include cost estimates and the logistics of having large numbers of stakes manufactured and delivered in a viable and sustainable way to climbing bean farmers in the main growing areas.

### Soil fertility

The soil fertility component of the Project, which promotes the use of 100kg/ha of DAP fertilizer together with 1000kg/ha of farm yard manure and the inoculation of bean seed to improve the nitrogen status of the soil, has been well received and there is a broad understanding and acceptance amongst climbing bean growers of the benefits of improving soil fertility. Yield increases have been observed in all demonstration plots where this fertilization regime is applied. However we were unable to determine to what extent the increase can be specifically attributed to fertilization because of the other yield enhancing practices applied such as the improved varieties higher plant populations and improved staking methods.

There are a number of soil fertility issues that may still be limiting climbing bean yields in the Project areas. It is recommended that the Climbing Bean Project consider investigating:

- The yield response to potassium (K) fertilization;



- An alternative to DAP as a source of soil phosphate in order to slightly reduce to level of N applied to beans. (This could be achieved by investigating the use of a suitable fertilizer mixture containing N, P and K elements.); and
- Varying levels of P fertilization (with DAP or an alternative P carrier).
- Including liming trials on selected demonstration plots in the Highlands and possibly at Nyagatare in the Lowlands
- Testing the effectiveness of seed inoculation on selected demonstration plots. in the Highlands and possibly at Nyagatare in the Lowlands

These trials should be coordinated with the RAB's initiative to promote Integrated Soil Fertility Management practices.

- The demonstration plots are the most suitable place for these additional trials.
- It is recommended that the Project place more emphasis on livestock integration by involving the livestock divisions of the Ministry of Agriculture more formally in the Program. This is important to improve the availability of FYM

### **Climate**

The recent drought in Rwanda has illustrated the sensitivity of climbing beans to sub-optimal soil moisture conditions. This was particularly evident in the Eastern Districts. It is recommended that the Climbing Bean Project consider the testing /demonstrating improved bush bean varieties in the hotter and drier Bugesera and Ngoma Districts.

### **Commercialisation, marketing and value adding**

The commercialisation of climbing bean production (i.e. phasing out government subsidies, farmers paying for all inputs and increasing the standards of production to ensure a profit from the crop), the issue of commercial marketing of bean yields in excess of local consumption and the opportunities for adding value to the raw bean crop, are aspects of the Project that have received the least attention during the three-year time frame.

It is recommended that the Project continue with its policy of providing free inputs to the demonstration plots and to the "poorest of the poor" farmers but not expanded to other farmers. The success of the Project could be jeopardised if an element of dependency on the Project arose amongst climbing bean farmers.

To assist farmers in gaining a better understanding of a more commercial approach to bean production, the Climbing Bean Project should consider including a financial and marketing component to both the demonstration units and the training program.

The financial component of the demonstration units could consist of a production program showing unsubsidized production costs and achievable yields under good agronomic management, the income from the sale of the crop and the net cash benefit. This simple gross margin analysis will show the benefit of paying for fertilizer and plant protection chemicals and even for seed in the future.

It is also important for the Climbing Bean Project to be able to illustrate that climbing bean production on a commercial scale is viable and sustainable without subsidy and to demonstrate the benefits and risks in order to facilitate access to microcredit. Without commercially available financing of production inputs which are user-friendly and affordable, the commercialisation of agriculture, will struggle to gain momentum.

These commercial elements of bean production should also be included in the formal training programmes for farmers and local government support staff to demonstrate more proactively the commercialisation philosophy (break the subsistence mind-set).



It is also recommended that the Project consider such opportunities for local processing and packaging of beans and opportunities for formal export marketing.

### **Rapid Assessment assignment limitations**

The Consultants would like to note that this assignment, although a Rapid Assessment, could have been allocated an additional 15 working days (extended from 25 to 40 working days) given the constraints with regard to the scheduling of travel (to site and on site) and the coordination of meeting with various stakeholders who often have difficulty in dedicating the necessary time to interviews. We feel that additional time on site with stakeholders and sufficient time for later follow-up, would have added significantly to the value of the Rapid Assessment.



## Acronyms and Abbreviations

AGRA	Alliance for a Green Revolution in Africa
ASIF	African Seed Investment Fund
CIAT	International Centre for Tropical Agriculture
COAMV	Cooperative of Maize Farmers in the Volcanic Zones
DAP	Di-ammonium phosphate
FYM	Farm Yard Manure
Golder Associates	Golder Associates Africa (Pty) Ltd
ICRAF	International Centre for Research in Agroforestry
IFDC	International Fertilizer Development Centre
ISAE	Higher Institute of Animal Husbandry
ISAR	Institut des Sciences Agronomiques du Rwanda
ISFM	Integrated Soil Fertility Management
NGO	Non-Governmental Organisation
PI	Principal Investigator
PIP	Project Implementation Plan
PM & E	Project Monitoring and Evaluation
RAB	Rwandan Agricultural Board
RADA	Rwanda Agriculture Development Authority
RARDA	Rwanda Animal Resource Development Authority
SHEP	Soil Health Extension Program
SHP	Soil Health Program
The Project	The Climbing Bean Project
ToR	Terms of Reference



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### 1.0 INTRODUCTION

Climbing beans are an important staple food and cash crop in Rwanda, particularly in the northern region which is recognised as an important breadbasket of the country. Climbing beans are also noted to have potential in improving soil fertility, alleviating protein malnutrition and improving food security and poverty among a rural population.

The three-year Climbing Bean Project (referred to as the Project henceforth) was commissioned by the Alliance for a Green Revolution in Africa (AGRA) through its Soil Health Program (SHP), Soil Health Extension Sub-program (SHEP) and falls within Rwanda's National Bean Programme. The Project, which was started in 2010, targeted 25,000 smallholder farmers over three years in four districts of Rwanda.

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- d) To improve manure production and promote the adoption of modern integrated agronomic management practices (including fertilizer application) that enhance soil productivity; and
- e) To support farmers in identifying strategic and profitable markets for commercialization of beans to enhance their income.

The anticipated Project outputs as listed in the original Project proposal as follows:

- To increase bean yields from the current 800 to 1,000 kg/ha beginning by year 3 of the Project;
- To ensure that 50% of the farmers are using fertilizer in combination with other integrated soil fertility management practices including agroforestry intervention;
- To ensure that 20 to 30% of the target farmers have access to improved bean seed varieties;
- To ensure that 3-4 functional producer and marketing organizations/cooperatives have been established in each of the target districts;
- To make provision for significant increases in soil organic matter and nutrients;
- To increase the area under improved bean varieties, especially climbing types, to at least 20% (estimates are about 5% at present); and
- To double household incomes in three years (the duration of the Project).

Once the Project implementation began, the specific objectives were expanded to include a measure of outcomes and indicators which could be used to demonstrate progress against targets set for the three-year implementation. Also included was the issue of project management, monitoring and evaluation and measures for keeping the Project on course, assessing progress and generating lessons learned for feedback into the project management system.

During the first year of implementation of the Project, the Ministry of Agriculture underwent a major restructuring, which involved the merger of some of its agencies to form the Rwanda Agricultural Board (RAB). The agencies incorporated in RAB include the Rwanda Animal Resources Development Authority (RARDA), the Rwanda Agricultural Development Authority and the Rwanda Agriculture Research Institute (ISAR in its French acronym). The timing of the restructuring had a disruptive effect on the implementation of the Climbing Bean Project, which was initiated through ISAR before falling directly under RAB.



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The Project was implemented in five Districts of Rwanda, namely Musanze and Burera in the northern districts and Bugesera, Ngoma and Nyagatare in the southern districts (Figure 1).

Field work for this rapid assessment took place in Rwanda from 15 – 22 August 2013.



# RAPID ASSESSMENT OF CLIMBING BEAN PROJECT - FINAL REPORT



Figure 1: Overview of the four Districts that are the focus of the Project (based on original proposal by ISAR)



## 2.0 APPROACH AND METHODOLOGY

The findings of this assessment were derived through the collection of both primary and secondary data which included a desktop review of relevant Project related reports and interviews with key stakeholders involved in Project management and Project implementation and with Project beneficiaries including farmer representative groups such as farmer cooperative members and individual leading farmers involved in the Project.

In dealing with each objective of the report, the outputs and progress towards targets is measured by indicators. The Project outputs, indicators and targets for each objective are described in Appendix B.

A detailed description of the Approach and Methodology used in this Assessment is provided in the Project Inception Report (Golder Associates Report number 13615322-12257-1).

A brief discussion on each of the data collection methods used is provided below.

### 2.1 Data collection methods

#### 2.1.1 Desktop review

This task entailed the collection and review of all existing and relevant documentation relating either directly or indirectly to the Project. Documents reviewed included the following:

- The Strategies for Sustainable Crop Intensification in Rwanda developed by the Ministry of Agriculture and Animal Resources;
- The original Project proposal drafted in 2009 by ISAR;
- The Grant Narrative reports compiled by the RAB Project Manager and Project Team from the start of the Project in 2010 to the end of 2012. It must be noted that no Grant Narrative report that covered the period January – June 2013 was received for review;
- The Project Implementation Plan (PIP) for the Project;
- An organogram for the RAB;
- A Project audit report compiled by AGRA in June 2013; and
- Relevant data and documents received from the AGRA Team or downloaded from the AGRA website.

#### 2.1.2 Semi-structured and key informant interviews

Two of the primary data collection methods used for this assignment were semi-structured and key informant interviews. These interviews were based on key questions developed by the assignment Team which were separated into 'Institution representative' and 'Individual farmer' questions. These categories were created based on a review of Project documentation prior to members of assignment Team conducting fieldwork, discussions with the AGRA Team held at the assignment Inception meeting and the relatively short duration of this assignment. A complete and comprehensive list of stakeholders interviewed during this assignment is presented in Appendix C. A map indicating the respective locations of stakeholders interviewed with Rwanda is presented in Appendix D.

#### 2.1.3 Focus group discussions

Focus group interviews are known to be very effective in a rural context where affected individuals can offer opinions and insights in a group format. Focus group discussions were held with Farmers' Associations and Cooperatives in all five Districts assessed during this assignment (see Appendix D). The intention of these discussions was to gather information from farmers in particular about their perceptions of the Project, what they felt were the benefits and challenges and how they see their further participation in the Project.



## 2.1.4 Field observations

Field observations offer a physical understanding of the Project and social setting and were used to compare actual agricultural practices with those proposed in the Project plan. In the context of this study, field observations will be used to assess the following:

- To better understand the agronomic practices of farmers participating in the Project and compare these with best practice (where applicable); and
- To verify soil conditions in each of the five Districts and
- To verify some of the claims and comments made by respondents during the focus group discussions and key informant interviews.

## 2.2 Data analysis methods

After a review and gap analysis, collected data was collated and analysed. The approach involved breaking large or disparate data sets into smaller ones (based on techniques suggested by Leedy and Ormrod, 2005). In summary, the following steps were followed:

- Organising the data into a Microsoft Excel database, based on the different themes identified within each tool used;
- Perusing the entire qualitative data set to get a 'sense' of what it contains. During this process, notes will be recorded suggesting possible categories or interpretations;
- Identifying general categories or themes and then classifying the data accordingly, paying attention to patterns that emerge; and
- Integrating and summarising the data.

## 3.0 DESKTOP REVIEW

The purpose of the desktop review was to familiarise the consultants with relevant Project details reported by RAB, to assess project management tools used during implementation of the Project and to review a recently completed Project audit report completed by AGRA in order to identify any possible gaps and to link these to findings during the field work component of the Assessment.

### 3.1 Grant Narrative/Interim Reports (2010 – 2012)

The Grant Narrative Reports or Interim reports were to be completed bi-annually throughout the 3-year Project implementation timeframe for the purpose of reporting back on Project activities, achievements, challenges and to document lessons learned under the period of consideration to AGRA. It is assumed that these reports were delivered to the relevant AGRA representative on time and in the correct format and structure.

The following Grant Narrative Reports or Interim Reports for the Project were supplied to the assignment Team for review:

- 2009 SHP 034 - Narrative report with Bashir comments - June 2010 to December 2010 - interim report covering the period June 2010 to December 2010;
- 2009 SHP 034 - Narrative report - January 2011 to May 2011 - interim report covering the period January 2011 to May 2011;
- 2009 SHP 034 Grant Narrative Report December 1 2011 to May 31 2012 - interim report covering the period December 2011 to May 2012; and
- 2009 SHP 034 Grant Narrative Report June 1 to November 2012 - interim report covering the period June 1 to November 2012.



Relevant information on achievements, challenges and lessons learnt, as documented by the RAB Project Manager from each of the reviewed narrative reports has been extracted and summarised in Appendix E.

The achievements, challenges and lessons learnt, as reported in the Interim Reports, were, where possible, investigated during consultation with stakeholders in the field. However this exercise was limited by the time constraints of the Rapid Assessment.

### 3.2 Project Management tools

Project management tools used for the Climbing Project included a Project Risk Assessment, a Project Implementation Plan (PIP) and the AGRA Indicator Performance Tracking Table (IPTT). A brief review of the contents of each tool and how they were used is discussed in the following sections.

#### 3.2.1 Project Risk Assessment

A Risk Assessment received from the Project Manager, Dr Tenge Ngoga was reviewed by the Consultants. This assessment appears to have been prepared prior to the Project commencing, but this was not confirmed by the Project Manager. From a Project Management perspective this type of assessment considers best practice and when combined with an implementation plan, it can serve to highlight key constraints to the Projects achieving its objectives. The Risk Assessment for the Project highlighted the following four key risks with associated risk ratings:

- Risk 1: Transfer from ISAR to RAB institutions and related staff reallocation
  - New regulations and procedures for expenses - **Low**
  - Reallocation of Staff - **Medium**
  - Involvement of several RAB program in the implementation of the Project – **Medium**
- Risk 2: Disturbance due to differences of the submitted and approved proposal
  - Delay in the approval of the proposal and handicap the beginning of activities - **Medium**
  - The communication of the approved proposals and Budget – **Low**
- Risk 3: Natural disasters and sensitivity of heavy rainfall to the climbing bean in Northern of Rwanda
  - Sensitivity of Climbing bean to heavy rainfall/high soil humidity - **Medium**
- Risk 4: Availability of Climbing Bean Staking Materials
  - High number of staking materials required (like 50,000 per hectare) – **Medium**

From a basic review of these identified risks, the assignment Team noted that the risk ratings for Risk 1 and Risk 2 seem to be underestimated given the relatively short timeframe for Project implementation. An institutional change such as the merging of two or more organisations during Project implementation can create a number of issues and challenges (for example):

- Administrative incompatibilities;
- Loss in institutional focus; and
- Lack of or a delay in institutional integration.

The risk ratings for Risks 1 and 2 identified by the Project manager should (in the opinion of the Assessment team) reflect a **Medium** to **High** rating.

#### 3.2.2 Project Implementation Plan (PIP) for 2010

In reviewing the PIP for 2010, the following observations can be made:



- The PIP provided to the assignment Team covered a period of one year (June 2010 – May 2011). A request for the PIPs for the remaining years was made to the Project Manager but this information has not yet been received; and
- The PIP is generally well constructed and comprehensively populated with details around planned activities, milestones, timeframes, responsibility and cost allocations.

When questioned about the use of the PIP, the Project manager reported that the PIP is used as a tool to monitor the accomplishment of Project activities and that the training that he received on the use of the PIP as a Project Management tool was sufficient.

### 3.2.3 AGRA Indicator Performance Tracking Table

As noted in the “Indicator Performance Tracking Table (IPTT) Guidelines for Program Officers and Grantees”, “*The IPTT is an integral part of progress reports submitted by grantees to AGRA through relevant program officers as agreed in the grant agreement. It enables the grantee or implementing organization or partner share data on key indicators to show progress of work and results with AGRA. The data provided on the indicators will feed into AGRA’s Management Information System (MIS) that provides organization-wide periodic reports on key indicators to management.*”

The AGRA IPTT was introduced into the Climbing Bean Project during January 2013. The main points arising from a review of the IPTT for the Climbing Bean Project are as follows:

- The order of the Project objectives presented in the IPTT is not consistent with the format presented in the table shown in Appendix B. This makes the task of cross-checking and reviewing whether Project targets have been met challenging; and
- The IPTT appears to have (otherwise) been populated in the correct (or intended) way and all data included has (wherever possible) been cross-checked with data reported in the Project’s Interim reports to ensure that these figures are aligned.

The Consultants feel that had the IPTT been implemented earlier in the Project, targets that were at risk of not being achieved may have been identified at an earlier stage and measures could have been introduced to mitigate these. Earlier implementation of the tool, complemented by some additional training, may also have improved formatting and ensured that it is consistent with the table in Appendix B. The progress of the Project in regard to achieving targets set at the start of the Project as reported in the IPTT are discussed in Section 5.1 of this report.

### 3.3 AGRA internal audit report

An internal audit of the Project was undertaken by AGRA’s internal audit Team from March to June 2013. It is not within the scope of this assignment to focus on all the findings of this audit report but it is important to highlight key findings which may have had an impact on delivery and implementation of the Project. The summarised findings of the audit report are presented in Table 1.

**Table 1: AGRA internal Project Audit report - summarised findings**

Finding	Comment
Project implementation	<ul style="list-style-type: none"> <li>■ Project has achieved 60% of its intended objectives (6/10 outcomes achieved).</li> </ul>
Inadequate project monitoring	<ul style="list-style-type: none"> <li>■ No formal monitoring mechanism of the Project activity was put in place during the implementation period despite budget allocations for each of the three year duration for the Project</li> </ul>
More appropriate use of project management tools	<ul style="list-style-type: none"> <li>■ PIP and IPTT utilised - in line with good project management practice</li> <li>■ PIP developed does not record cost associated with each implementing activity and is also not updated with details and timelines of actual</li> </ul>



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Finding	Comment
	implementation
Lack of a Project communication plan	<ul style="list-style-type: none"> <li>The Project has not formalized a communication plan for Project stakeholders that should outline the tailored communication methods and information for the different stakeholders, responsible staff and the cost</li> </ul>
Lack of a Project Risk Assessment	<ul style="list-style-type: none"> <li>Risks were not assessed and managed in a formal mechanism to ensure minimal negative impact on running programs*</li> </ul>
No publishing of Project results	<ul style="list-style-type: none"> <li>The Project has so far not initiated any process or effort to publish the results of the Project despite the Project coming to an end in May 2013.</li> </ul>
Improper flow of funds from RAB Headquarters to Zones	<ul style="list-style-type: none"> <li>The Project transfers to the various locations are not traceable in the zonal ledgers;</li> <li>A double-entry bookkeeping system of recording the transactions was not observed;</li> </ul>
Inadequate supporting documentation	<ul style="list-style-type: none"> <li>The Project did not avail adequate supporting documentation for transactions amounting to RWF 615,211 (approximately USD 1,000).</li> </ul>
Lack of a Project asset register	<ul style="list-style-type: none"> <li>The Project does not maintain a separate Project asset register from the institution.</li> </ul>
Non-compliance with reporting schedule	<ul style="list-style-type: none"> <li>The Project did not adhere to the reporting schedule and requirements of the Grant agreement letter relating to submission of interim reports on time.</li> </ul>
Co-mingling of funds	<ul style="list-style-type: none"> <li>Best practice in project management requires the Project to maintain a separate bank account for all grant funds received from AGRA. RAB continues to co-mingle AGRA funds with funding for other donors.</li> </ul>

\*Note: Section 3.2.1 which discusses the Risk Assessment completed for the Project was compiled under the assumption that this was undertaken at the onset of the Project. This is in conflict with the findings of the AGRA internal audit report and this section should, therefore, be considered as a retrospective Risk Assessment. Source: Internal Audit Unit Report on an Audit of the Project "Increasing soil fertility benefits of climbing beans and associated agroforestry interventions under smallholder production systems in the northern and Eastern regions of Rwanda", Grant Ref. No. 2009 SHP 034.

The issues identified in the AGRA audit report point to the following broad constraints within the RAB Project management and implementation Team:

- Lack of Project management capacity and/or experience in managing a project of this nature which entails multi-stakeholder involvement and coordination; and
- Inadequate financial management and oversight capacity within RAB.

It is important to highlight the link between the findings reported in the AGRA Audit report and findings from stakeholder consultation by the consultants. The following section presents the findings of the Rapid Assessment.

### 4.0 RAPID ASSESSMENT FINDINGS

The findings of this Rapid Assessment are based on the observations made during the Desktop Review and also on stakeholder consultation during August and September 2013.

Two distinct stakeholder groups exist in the Climbing Bean Project. Firstly, institutions involved in implementing and supporting the Project and secondly, individual farmers and farmer cooperatives and associations who are the Project's beneficiaries.



### 4.1 Reported Project progress and achievements

The reported Project progress and achievements for the Project were extracted from the Project IPTT and Interim reports and are presented in a summarised format in Table 2. From Table 2 the following comments can be made:

- Targets completely achieved by end of Year 3:
  - **Objective 1: To improve farmers' access to superior climbing and bush bean varieties adapted to their local environments in selected sites in Musanze (climbing), Bugesera, Ngoma and Nyagatare (climbing and bush) districts in Rwanda**
    - 48.7 tons of foundation bean seed for multiplication (1 ton for each variety) was produced and distributed for secondary multiplication. The target of 30 tons over a period of 3 years has, therefore, been exceeded;
    - 806 farmers directly trained each year on seed multiplication and business skills which is in excess of the target of 600 farmers trained over a period of 3 years;
  - **Objective 2: To demonstrate the benefits of integrated soil fertility management practices including phosphorus fertilizer micro-dosing, manure application, lime and rhizobium inoculum applications that enhance bean productivity**
    - 722 MT of bean seed is produced by RADA, COAMV, BAMPOREZE, and contract secondary multipliers each year of the Project implementation;
    - 50 800 agro-forestry seedlings were planted in the 3 years of the Project – exceeded the target of 1000 seedlings set;
  - **Objective 3: To assist farmers to produce, practice appropriate staking and appreciate the importance of N-fixing agroforestry species in soil health improvement**
    - About 852 demonstration gardens were planted and visited by farmers in 3 years;
  - **Objective 4: To assist farmers to generate income through strategic and profitable commercialization of beans**
    - 769 farmers (target of 600) were trained on commercial production of climbing beans by the end of year 3.

It must also be noted that the two students are involved in research specific to the Climbing Bean Project. Their details are as follows:

**Name:** Nadia Musaninkindi

**Study title:** Effect of cattle manure, mineral fertilizer and rhizobium inoculation on climbing beans production and soil properties in Burera district, Rwanda.

**Name:** Jonas Munyurangabo

**Study title:** Comparative Study of profitability between climbing beans and bush beans in Ngoma district. Case study: Murama and Karemba sectors.



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**Table 2: Project progress and achievements (June 2010 - November 2012)**

Activity	Targets	Achieved Year 1	Achieved Year 2	Achieved Year 3	Achieved Total	% complete
<b>Objective 1: To improve farmers' access to superior climbing and bush bean varieties adapted to their local environments in selected sites in Musanze (climbing), Bugesera, Ngoma and Nyagatare (climbing and bush) districts in Rwanda.</b>						
1. Conduct pre-basic (primary) seed production.	- 10 tons of breeder seed (1 ton for each variety) is produced and distributed annually for secondary multiplication.	22	6.5	20.158	48.7	487
2. Train farmers and cooperatives on seed multiplication and business skills	- 200 farmers directly trained each year.	340	120	346	806	134
<b>Objective 2: To demonstrate the benefits of integrated soil fertility management practices including phosphorus fertilizer micro-dosing, manure application, lime and rhizobium inoculum applications that enhance bean productivity.</b>						
3. Distribute secondary seeds to farmers for commercial multiplication.	- At least 50 MT of seed is produced by RADA, COAMV, BAMPOREZE, and contract secondary multipliers each year of the Project implementation.	462	60	200	722	481
4. Train farmers in N-fixing agro-forestry nursery preparations and maintenance, its use in staking and other additional advantages.	- 6,700 farmers are trained each year directly or indirectly through videos, study tours and field days.	3484	2500	2145	8 129	41
- Guide farmers to plant N-fixing trees, on- farm terraces, farm borders or in association with climbing beans.	- One-third of the seedlings are planted each year until all the 1000 seedlings are planted in the 3 years of the Project.	12 000	3 800	35 000	50 800	5080
<b>Objective 3: To assist farmers to produce, practice appropriate staking and appreciate the importance of N-fixing agroforestry species in soil health improvement.</b>						
5. Training of farmers on modern agronomic innovations and practices.	-33% (of 20,000 farmers) of the farmers are trained each year directly, through trained ToTs and through university students	3 484	3 700	6 450	13 634	68
	-About 400 demonstration gardens are planted and visited by 20,000 farmers in 3 years.	708	60	84	852	213
<b>Objective 4: To assist farmers to generate income through strategic and profitable commercialization of beans.</b>						



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Activity	Targets	Achieved Year 1	Achieved Year 2	Achieved Year 3	Achieved Total	% complete
6. Conduct training workshops for farmers on business skills/entrepreneurship.	- At least 20,000 pieces of promotional materials are produced and distributed to 7,000 persons and all public places by end of 3 <sup>rd</sup> year.	490	125	0	615	9
	- At least 200 farmers are trained every year on commercial production of climbing beans.	490	75	204	769	128



It is anticipated that this research will add significant value to the Climbing Bean Project upon completion

- Targets not achieved/partially achieved by end of Year 3:
  - **Objective 2: To demonstrate the benefits of integrated soil fertility management practices including phosphorus fertilizer micro-dosing, manure application, lime and rhizobium inoculum applications that enhance bean productivity**
    - 6,700 farmers are trained each year directly or indirectly through videos, study tours and field days. A total of 8,129 farmers were reported to have been trained over the period of 3 years.
  - **Objective 3: To assist farmers to produce, practice appropriate staking and appreciate the importance of N-fixing agroforestry species in soil health improvement**
    - 13,634 farmers were trained on modern agronomic innovations and practices over a 3 year period. The target was 20,000 farmers trained by the end of year 3.
  - **Objective 4: To assist farmers to generate income through strategic and profitable commercialization of beans**
    - 615 pieces of promotional materials were produced and distributed over the 3 year period. This was well below the target of 20,000.

In summary, the RAB Team appear to have excelled more at the achievement of production related targets rather than the broader training related targets. Where training targets were achieved, the targets were set at far more modest levels. A possible reason that a number of key targets were not achieved may be indicative of capacity constraints within RAB. Key Project tasks and objectives that are not fully complete at this stage will mean that the Project will need to be extended to ensure that the incomplete tasks and objectives can be achieved. This could be done through extending the Project and revising targets set for the training of farmers in line with the current RAB staff capacity.

## 4.2 Project management and implementation

During an initial interview with the Project manager it was established that an additional District, Burera situated in the Northern Agriculture Zone of Rwanda, has been included in the Project. This brings the Project focus areas to five Districts as opposed to the original four at the start of the Project. To understand how the Project has been managed over the 3-year implementation period the RAB Project Manager, Dr Tenge Ngoga, noted that the following project management tasks are typically followed each year:

- At the beginning of each season, a planning meeting is held to discuss the plan of what needs to be done during the upcoming growing season;
- Based on the identified and agreed needs, the Project Principal Investigator (PI) then makes a formal request for funds to be transferred to the Agricultural Zones. A technician at each of the sites is then responsible for the implementation of activities;
- The Project PI is responsible for follow up on the accomplishment of activities and is assisted by accountants, the procurement department and RAB Zonal head to manage the funds and make sure that RAB or government procedures are followed;
- The Project PI is responsible for technical reporting to AGRA;
- The Project PI, chief accountant and the Director of Finance are responsible for financial reporting.

RAB's focus appears to be more on the overall Bean Programme than on the Climbing Bean Project specifically. More focus on completing the objectives of the Climbing Bean Project is recommended should an extension to this Project be considered. The RAB Project Manager also reported that the following be considered to improve Project management and implementation:



- Separate project finances from management;
- Have a shortened the government financial, procurement and administration procedures; and
- AGRA (or another donor) to provide training support to RAB Monitoring and Evaluation team to help the project coordinator to follow up on planning, implementations and reporting activities.

The above issues seem to indicate that the Project and its implementation may have been affected to an extent by bureaucracy (an excess of administrative procedures that need to be followed).

There also seems to be a “disconnect” between the AGRA reporting system (particularly with respect to financial and progress reporting) and that of RAB. An example of this ‘disconnect’ was identified after an interview with the RAB project accountant who noted that proper financial reporting as expected by AGRA was a challenge for their relatively small but willing team. He confirmed that although some training was received from AGRA, more focused or appropriate training on the Project’s financial management requirements was required. This is consistent with the findings of the AGRA Audit report which suggested an inadequate financial management and oversight capacity within RAB.

During discussions with Dr Ngoga, it became clear that significantly more time needs to be allocated by the project manager and implementation team to the Project in order to meet the set performance targets. This is difficult to achieve with all the other responsibilities that these officers carry. To better understand how the Project is structured under RAB, a diagram illustrating the Project’s organisational structure is shown in Appendix F.

The challenges in managing a Project of this size and scope are the following:

- The communication between RAB, local government and all partners involved in the Project could be more coordinated and streamlined;
- There appears to be a lack of focused monitoring and evaluation of the Project by RAB (because of the many different projects run from within the Institution);
- There appears to be lack of a dedicated database for the Project; and
- There is a lack of a simplified and common reporting system.

The abovementioned challenges could be due to bureaucracy that is inherent in public or Government institutions or they could be as a result of poor prioritization on the part of RAB. It is the opinion of the consultants that these challenges are a result of both bureaucracy within RAB and a lack of prioritization on the part of the project manager.

The consultants also dedicated time to better understanding the roles and challenges of the various institutions involved in either implementing and/or supporting the Project during implementation. These issues are discussed in greater detail in the following sections.

### 4.3 Roles and responsibilities of institutions involved in implementing and supporting the Project

Based on a review of the organogram presented in Appendix F, the Assessment team reviewed the roles and responsibilities of the various institutions involved in the Project (either in a direct or supporting capacity) and how the key role-players understood their respective roles and whether any potential for overlap exists. The information collected from interviews is summarised and categorised in Table 3.

Representatives from institutions such as the Rwanda Agriculture Board (RAB), Local Government Administration, Urugaga Imbaraga, AGRA and an Agro-dealer (Win-Win AgriTech) were consulted. From a review of the information collected, the following table highlights the role each institution plays within the Project:



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**Table 3: Roles and responsibilities of key institutions and role-players**

Theme	Rwanda Agriculture Board (RAB) <sup>1</sup>	Local Government Administration <sup>2</sup>	Urugaga Imbaraga <sup>3</sup>	AGRA <sup>4</sup>	Agro-dealer (Win-Win AgriTech <sup>5</sup> )
<b>Training and capacity building</b>	<p>Provide training farmers/cooperatives on the application and the uses of chemical fertilizer</p> <p>Provide training to local government administration staff on good agricultural practice, post-harvest handling</p>	<p>Provide technical agricultural training and extension services to farmers</p> <p>Promote agro-forestry services with assistance from RAB technicians</p>	<p>Capacity building for agronomic practices (farmer level)</p>	<p>Provides business training to farmers</p> <p>Provide technical training and skills transfer to farmers and stakeholders</p>	
<b>Marketing support</b>	<p>Assist farmers identify markets for their produce</p>		<p>Link farmers with breeders and markets</p> <p>Information sharing: identify price variations for different produce</p> <p>Knows the needs of the buyers (specific varieties and quality)</p>		<p>Links farmers with good quality seed</p>
<b>Technical Assistance</b>	<p>Provide technical support and inputs (seed, fertilizer, and spray) to farmers</p>	<p>Responsible for land measurements and for providing estimates of land size available for production within a cell</p> <p>Provide plant protection</p>	<p>Provides plating plans to farmers and cooperatives</p>	<p>Responsible for seed development program (Program for Africa's Seed System)</p> <p>Sponsors technical support and funding for Agro-</p>	<p>Provides technical support to seed multipliers</p> <p>Contracts cooperatives and commercial farmers to produce seed for multiplication</p>

<sup>1</sup> Comments were summarised based on discussions held with: Dr Ngoga, Mr Kazungu, Mr Musoni, Mr Izamuhaye, Ms Nhatgekemana, Mr Gakwavu, Mr Murwano, Mr Nyiringabo, and Mr Gatete;

<sup>2</sup> Comments were summarised based on discussions held with: Mr Uwumuruza, Mr Nsabi Nama, Mr Bigrimana, Mr Nzabonimpa, Mr Ayanbaje;

<sup>3</sup> Comments were summarised based on discussions held with Mr Gafaranga;

<sup>4</sup> Comments were summarised based on discussions held with representatives from AGRA, RAB, Win-Win, and farmer associations/cooperatives.

<sup>5</sup> Comments were summarised based on discussion held with Mr Nyiringabo and Mr Ndayisaba



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Theme	Rwanda Agriculture Board (RAB) <sup>1</sup>	Local Administration <sup>2</sup> Government	Urugaga Imbaraga <sup>3</sup>	AGRA <sup>4</sup>	Agro-dealer (Win-Win AgriTech <sup>5</sup> )
		services to farmers		dealers (such as Win-Win Agritech)	
<b>Monitoring and evaluation</b>	Responsible for seed certification and inspection	Implementing agent (adhere to performance contracts based on targets set at the District level)		Monitor Project progress through RAB reporting	



## **4.4 Challenges for institutions involved in implementing and supporting the Project**

Challenges identified by the representative interviewed during the Rapid Assessment were categorised and summarised in table 4 below:

The key issues to note from the table are as follows:

- Institutional/administrative challenges raised include the issues associated with the restructuring of RAB from ISAR and administrative delays caused by RAB systems and processes that result in delays of payments to service providers (such as Uragaga Imbaraga). This could be evidence of bureaucracy associated with Government Institutions;
- The Agro-dealer representative did not comment to a great extent on production or training challenges but noted that although providing the same improved seed varieties as RAB, farmers were seeing little value in supporting agro-dealer due to antagonistic efforts by other institutions who were providing the same seed either for free or at a subsidised price This issue has been raised with RAB;
- A shortage of RAB staff dedicated to the Climbing Bean Project. This could be a result of a lack of prioritization on the part of RAB;
- A shortage of staking materials to be produced and supplied to farmers; and
- A lack of information on possible export markets where farmers, through organised and appropriate marketing channels could trade harvested beans.

Recommendations made by the various representatives interviewed centred strongly around the need for following:

- Increased stake production (through increased seedling production and distribution). The shortage of staking materials was a common theme throughout interviews conducted with representatives from RAB and Local Government;
- Capacity building and training of farmers and facilitators. Capacity building and training of farmers was listed as a key activity for the Project and although some training in the application chemicals and agronomy (for example) has been provided, it appears that this has not been fully completed; and
- Additional RAB staff to provide support to Local Government technicians.



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**Table 4: Challenges noted by key institutions and role-players**

Theme	Rwanda Agriculture Board (RAB)	Local Administration	Government	Urugaga Imbaraga	AGRA	Agro-dealer (Win-Win AgriTech)
<b>Institutional/administrative</b>	Project Implementation Plan for the Climbing Bean Project was delayed due to the move from ISAR to RAB	Lack of a financial incentive for farmer promoters/facilitators to better support the administration		Administrative processes often lead to delays in payment  Better coordination of role-players	There are reporting issues on the progress of the Project  There are data collection gaps and lack of figures/numbers of farmers entering the Project.	
<b>RAB staff capacity</b>	Shortage personnel dedicated specifically to Climbing Bean Project					Making farmers aware of improved seed varieties due to limited knowledge  Farmers are far away and cannot come to towns to purchase seed
<b>Technical/production</b>	To service the growing need for staking material of farmers without agroforestry	The demand for the climbing bean seed (appears to consistently) exceed the supply in the current market  Shortage of staking material		High production cost (250frw/kg) Most of farmers don't know where to buy seeds  After harvesting, seed multipliers lack buyers of seed and sell it to the local market as consumable beans at lower price  There is lack of improved small bags of beans (biodegradable plastic bags, containing 0.5 kg to 2 kgs).		Farmers are not buying directly from Agro-dealers, because the 20% of farmers that are aware of improved varieties, the government is giving seed for free  Seed quality depreciating because Harvest-Plus do not have inspections
<b>Market/market support</b>				Lack of information on the market of neighbouring		Unfair competition reported: Harvest Plus, an



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Theme	Rwanda Agriculture Board (RAB)	Local Administration	Government	Urugaga Imbaraga	AGRA	Agro-dealer (Win-Win AgriTech)
				countries like Uganda, Sudan		NGO, sells seed at 400RWF. Win-Win price is 600RWF Unfair competition due to subsidies Ministry of agriculture sells fertilizer at half price and give farmers seed for free;



## 4.5 Findings from Focus Group Discussions with Farmer groups (associations and cooperatives)

It was agreed with the RAB Project team in Rwanda that the additional district of Burera in the Northern Agricultural Zone would be included in the study. Burera has been included in the Climbling Bean Project because it is one of the prime bean growing areas of Rwanda and, together with Musanze, is very well suited to climbing bean production.

A description of each farmer’s cooperative or association in which focus group meetings and individual farmer interviews were held is presented in Table 5.

**Table 5: Group descriptions**

	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabara Cooperative	Imbarutso za Karembo	Dukuka Duhamire Kujijuka Cooperative
District	Burera	Musanze	Bugessera	Ngoma	Nyagatare
Sector	Gitovu	Remere	Juru	Karembo	Katabagemu
Number of members	61	135	50	111	140
Land size (consolidated)	15Ha (yes)	18Ha (yes)	2Ha (yes)	53Ha (no)	60Ha (yes)

The focus groups meetings, in the five districts, were held to better understand:

- Farmer perceptions of the Project;
- The support they’ve received from RAB;
- The benefits farmers in each of the regions have experienced; and
- The challenges faced as Project beneficiaries.

Participants were encouraged to provide recommendations or suggestions of how identified challenges could be addressed and how the implementation of the Project could be improved. The results of the meetings are summarised in Tables 6 -10 under the above headings.

**Table 6: Perceptions of the objectives of the Climbing Bean Project**

Perceptions	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabara Cooperative	Imbarutso za Karembo	Dukuka Duhamire Kujijuka Cooperative
To introduce improved bean varieties	√	-	√	√	√
To introduce agroforestry to farmers	-	-	-	-	√
To reduce poverty	√	-	-	√	-
To improve nutrition/food security	√	-	-	-	-
Provision of training	√	-	√	√	√
Provision of technical support and assistance	√	-	-	√	√
Provision of inputs/input support	√	-	√	-	√



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Note: √ = perceptions identified - = perceptions not identified.

The perceptions identified by each of the groups are generally consistent with the intended objectives of the Climbing Bean Project which indicates that communication to farmers within these groups and areas has, to some extent, been effective. It is important to note that in order to derive farmer's perceptions about the Project, the question regarding perceptions put to each group by the Consultants was open ended and groups could thus identify a range of perceptions. During post-fieldwork data analysis, similarities between what each group had reported were identified so that common themes could be developed. A positive response (a tick in the table) indicates that this was a perception identified by that group whereas a dash indicates that the perception was not identified by that group. Themes were, therefore, only identified during post-fieldwork data analysis and questions weren't specifically asked to each group in the way they are presented in Table 6.

**Table 7: Support received through Project**

Support received	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabar a Cooperative	Imbarutso za Karembo	Dukuka Duhamire Kujijuka Cooperative
Improved seed varieties supplied/received	√	√	√	√	√
Training and capacity building received from RAB	√	√	√	√	√
Training and capacity building received from AGRA	-	-	-	√	-
Staking material supplied/received	√	-	-	√	√
Marketing assistance provided by RAB	-	√	-	-	√
Opportunity to attend study tours	-	-	-	√	-
General technical assistance provided	√	√	√	√	√

Note: √ = reported to have received support - = not reported to have received support.

Key issues identified in regard to support received, included receiving of improved Climbing Bean varieties, receiving training and capacity building from RAB and/or AGRA and general technical assistance provided. Groups reported that they tended to receive limited marketing support and few groups mentioned that they either attended or had the option to attend study tours.

**Table 8: Perceived benefits**

Benefits	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabara Cooperative	Imbarutso za Karembo	Dukuka Duhamire Kujijuka Cooperative
Improved Climbing Bean yields observed	√	√	√	√	√
Increased income	√	√	-	√	√
Appropriate training received and implemented	√	-	√	√	-
Improved access to inputs	-	-	-	√	√
Improved sharing of	√	-	-	-	√



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Benefits information	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabara Cooperative	Imbarutso za Karemba	Dukuka Duhamire Kujijuka Cooperative

Note: √ = reported as a perceived benefit- = not reported as a perceived benefit.

Improved yields and incomes (not verified in the field) associated with Climbing Bean production was noted as key benefits amongst the groups consulted.

**Table 9: Perceived challenges**

Challenges	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabar a Cooperative	Imbarutso za Karemba	Dukuka Duhamire Kujijuka Cooperative
Limited availability of staking material	√	-	√	√	√
Unfavourable climatic conditions	√	√	√	√	√
RAB capacity/implementation which causes delays (seed)	-	√	√	-	√
Infrastructure and transport constraints	-	-	-	√	-
Access to microcredit facilities	-	√	-	-	-
Insufficient training received or lack of appropriate training received	-	-	-	√	√

Note: √ = reported as a perceived challenge- = not reported as a perceived challenge.

Unfavourable climatic conditions and the limited availability of staking material emerged as key issues identified as a challenge by each of the groups during discussions.

**Table 10: Recommendations from groups on improving implementation**

Recommendations	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabar a Cooperative	Imbarutso za Karemba	Dukuka Duhamire Kujijuka Cooperative
Increased training on climbing bean production	√	-	√	√	√
Training specific to needs of women	-	-	-	-	√
More effort needed on agro-forestry aspects due to shortage of staking material	√	-	√	√	√
Integration with livestock	√	-	-	√	√
Expansion of the Project	√	-	-	-	-
Market assistance	-	√	-	-	-
Improved access to	-	√	-	-	-



Recommendations	Northern Agriculture Zone		Eastern Agriculture Zone		
	Dushirehamwe Cooperative	Twunge ubumwe Association	Inkeragutabar a Cooperative	Imbarutso za Karembo	Dukuka Duhamire Kujijuka Cooperative
microcredit facilities					
Provision of post-harvest Storage facilities	-	√	-	√	-
Additional study tours	-	-	√	-	√
Improved dissemination of results	-	-	√	-	-
Research into varieties adapted to drier production conditions	-	-	√	√	√
Investigate value adding opportunities	-	-	-	-	√

Note: √ = recommended by group - = not recommended by group

Key issues identified during the focus group discussion in regard to recommendations made by each group were that increased training of farmers is needed. Also, groups felt that more effort on the part of RAB is needed in terms of agro-forestry and the provision of staking material for climbing bean production.

## 5.0 DISCUSSION OF KEY ISSUES IDENTIFIED DURING THE RAPID ASSESSMENT

### 5.1 Project progress and achievements

It is the view of the rapid assessment team that despite initial difficulties during Project implementation, associated with restructuring within the Ministry of Agriculture, the Project has, under the circumstances, made remarkable progress. The interest and enthusiasm shown by growers and their communities for the Project was abundantly clear in all our focus group meetings and interviews. The RAB staff involved in the Project, which both assisted with the assessment or with whom we had discussions or interviews showed remarkable enthusiasm for the Project and are committed to its objectives.

During discussions with farmer groups and associations, it was clear from the feedback received that:

- The Project has been positively received by the farmers in the farmers associations and cooperatives that had been targeted and a request for its expansion was aired at all the Focus Group Discussions;
- The Project has increased awareness about the benefits of the improved climbing bean seed;
- The Project's demonstration units have provided a "show window" to surrounding farmers and communities. The use of demonstration plots to illustrate and test the components of the Project has been successful and popular with participants, proving its value as a valuable tool in transferring technology and imparting new ideas and approaches in agriculture; and
- An indication of the Project's success is, to some extent, reflected in the very high and growing demand for improved climbing bean seed varieties experienced for the 2013/2014 growing seasons. For example, the head of the RAB's Northern Agriculture Zone Division reported that provision for 123 000ha (6 000t of seed) of improved climbing bean to be grown in the Northern Zone. This seed is being distributed through organisations such as the Imbaraga Farmers Federation and private sector distributors such as Win-Win Agri-Tech Ltd. who use a seed multiplication programme in the main growing areas. This programme is based on RAB "foundation" seed and a rigorous seed inspection and certification programme undertaken by RAB seed inspectors; and



- The Project's agroforestry programme has been successful in that all targeted farmers have been supplied with planting material and the value of the plants for staking has been widely recognised by these farmers and surrounding growers. The need to expand the programme through the establishment of agroforestry nurseries closer to the major climbing bean growing areas was regularly raised by farmers during the Focus Group Discussions.

It was evident from all the stakeholder meetings and farmer interviews that the Climbing Bean Project has achieved some success and has been well received by all beneficiaries. The enthusiastic and effective involvement of a wide range of role players and organisations in the roll-out of the Project is also noteworthy.

The range of services, including the distribution of improved seed, the soil fertility improvement program, the promotion of agro-forestry primarily for stake production and the related training programs have all had varying degrees of success and have all had positive impact on the Project participants.

### 5.2 Project management and implementation

The issues identified during the Assessment in regard to Project management and implementation included:

- Lack of project management capacity and/or experience in managing a project of this nature which entails multi-stakeholder involvement and coordination;
- Inadequate financial management and oversight capacity within RAB;
- The communication between RAB, local government and all partners involved in the Project could be more coordinated and streamlined;
- There appears to be a lack of focused monitoring and evaluation of the Project by RAB (because of the many different projects run from within the Institution);
- There appears to be lack of a dedicated database for the Project; and
- There is a lack of a simplified and common reporting system.

The Project may also have, to an extent, been negatively impacted by bureaucratic processes as the RAB Project Manager reported that the following be considered to improve project management and implementation moving forward:

- Project finances should be managed differently from the technical aspects of the Project so as to allow sufficient time to the project Manager to focus on other key aspect of the Project.
- Government financial, procurement and administration procedures should be shortened where possible; and
- AGRA (or another donor) could provide additional training support to the RAB Monitoring and Evaluation team to help the Project coordinator to follow up on planning, implementation and reporting of Project activities.

It was noted though that all RAB staff have other commitments within the institution and are unable to give the Climbing Bean Project their full attention. Their capacity to implement all components of the Project timeously has been negatively impacted at all levels in the Project – from overall project management through to the direct support to farmers at Local Government level. Discussion with farmer groups on the ground as well as in interviews with representatives from key role-players and institutions, confirmed Project management constraints and staff capacity constraints identified in all the Project progress reports and interim reports.

Specific issues raised by stakeholders include “a lack of RAB presence in the field and at demonstration sites” and that “RAB doesn't follow up” and “RAB has caused a delay in the supply of inputs (seeds) to farmers”. The delay in receiving seed for planting was not more than one or two weeks after the agreed planting date but was seen by many farmers as long enough to impact negatively on their crop growth and



yield. This concern should be seen in a positive light as it is a measure of the awareness of farmers about good farming practices for climbing beans and indicates the effectiveness of the Projects training programmes.

The benefits of the Project's interventions will not be transferred in an effective and sustainable way in just a few years and we strongly recommend that the program be extended by a further three years to 2016. This extension would not only consolidate the successes achieved with the existing programme and all its components but would also allow for the incorporation of the recommended additional or modified components of the Project.

It is recommended that RAB give consideration to the prioritisation of commitments of key personnel to allow them more time to focus on the Climbing Bean Project or, better still, to allow certain key team members to be free of all other duties and concentrate entirely on the Project. The limited capacity of staff also applies to the Agroforestry programme which, at present, cannot keep up with the demand for planting material for stake production.

### 5.3 Farmer institutional structures

The Climbing Bean Project has successfully operated through existing farmer cooperatives and groups. All our Focus Group meetings were held with the leadership (and other members) of the cooperatives and it was clear from the interaction that the Project had provided the cooperative with a focussed interest and had assisted with capacity building and training of both Cooperative office bearers and participants in the Climbing Bean Project.

The cooperative structure has allowed land use planning to be coordinated by RAB which has resulted in consolidated land use and focussed and coordinated support services. Cooperative members share production methods and benefit from demonstration units established on selected farms within each cooperative.

### 5.4 Agroforestry and the supply of staking material

The lack of sufficient supply of staking materials for climbing bean production has been raised by nearly every stakeholder interviewed during this assignment and the ultimate success of this Project will, thus, depend heavily on whether this constraint can be met.

The Project's agroforestry programme has been successful in that all targeted farmers have been supplied with planting material and the value of the plants for staking has been widely recognised by these farmers and surrounding growers. The need to expand the programme through the establishment of agroforestry nurseries closer to the major climbing bean growing areas was regularly raised by farmers during the Focus Group meetings.

Obtaining the recommended 50 000 stakes per hectare is proving to be a major challenge to growers. This is seen as not only a significant constraint to the expansion of the climbing bean program but is probably resulting in below-optimum yields where shorter and fewer stakes are being used than the ideal. Yields of climbing beans are directly affected by the number of stakes and their height. The optimum in Rwanda is considered to be 50 000 stakes per ha and a stake height of about 3m.

The main objectives of the agroforestry programme of the RAB, in the context of the climbing bean program are; the provision of stakes for bean production, stabilization of contour banks and terraces, nitrogen fixing for improved soil fertility, the provision of fodder for livestock and in some cases the control of pests. The main types of agro-forestry species being distributed for the climbing bean program and their main uses are:

- *Casuarina equisetifolia* (fuel wood, timber, stakes)
- *Grevillea robusta* (stakes, fuel wood, building materials)
- *Leucaena leucocephala* (stakes, fuelwood, timber, fodder)
- *Pennisetum purpureum* Napier grass or Elephant grass. (stakes, fodder).



- *Calliandra calothyrsus* (stakes, fuelwood, timber, fodder).

There is growing interest amongst climbing bean farmers in the agroforestry program and the value of plants being distributed for staking purposes. However at present the program cannot keep up with the demand for planting material. The programme seems to be constrained by limited staff, limited operating budget and the number of nurseries producing and supplying planting material. In addition to the limited size of nurseries, they are situated at considerable distance from the growers.

The agroforestry nurseries visited were found by the assignment Team to be well managed and were producing quality seedlings of a range of appropriate species but were clearly limited in capacity in terms of the demand. This is exacerbated by the fact that at present the agroforestry program has to serve other farmers besides the Project beneficiaries and is therefore struggling to meet their targets.

A common request from growers in the Focus Group Meetings and farmer interviews was for the establishment of agroforestry nurseries closer to their production areas and more focused support to the Climbing Bean Project.

At present the main sources of stakes for growers is Napier grass, which is fast-growing and has the added advantage of providing fodder for livestock and acts as a catch-crop for stem borer and other crop-damaging insects. However its main limitation for staking is that it usually only lasts for one season. *Leucaena* and *Calliandra* species are popular because they are long-lasting. However they take longer to establish and are slower growing than Napier grass.

The additional benefits of *Leucaena* and *Calliandra* species in terms of nitrogen fixation and stabilisation of contour banks and terraces appears to be well understood and appreciated by farmers, indicating that the Project's training programmes and demonstrations have been successful and effective. In view of this serious "bottle-neck" to achieving the projected expansion of the Project, it is recommended that:

- The Project considers providing additional support to the agroforestry initiative in order to make suitable planting material available to growers. This could be achieved by funding the establishment of agroforestry nurseries in each of the main climbing bean growing Districts and recommending to RAB that the staffing of the Agroforestry initiative be scaled up to meet this growing need.
- Napier grass planting material be distributed together with *Leucaena* and *Calliandra* to provide a short-term solution to the staking challenge while the slower growing *Leucaena* and *Calliandra* establish themselves on the farms
- Alternative methods of staking e.g. stringing on trellises; be further investigated and demonstrated and
- Alternative synthetic material for stakes, such as extruded plastic should be investigated. This investigation should include cost estimates and the logistics of having large numbers of stakes manufactured and delivered in a viable and sustainable way to climbing bean farmers in the main growing areas.

### 5.5 Climate and soils

The Project is involved in all the agro-ecological zones which display potential for climbing bean production. Table 11 shows the Districts and agro-ecological zones in which the Climbing Bean Project is represented. The climatic conditions and the dominant soils in each of the agro-ecological are also summarised.

The main feature of the agro-ecological zones is the difference in both climatic and soil conditions between the Highland zones and the Lowland zones. The Highland areas are situated at an altitude of over 1900m.a.s.l and consequently experience high rainfall of 1300mm/a, and moderate mean annual temperatures of 16-17C while the Lowland areas are situated at lower altitude (<1600m.a.s.l) with associated lower (and more variable) rainfall (1000-1200 mm/a) and higher mean annual temperatures of 20-22C.

The rainfall distribution in both the Highlands and the Lowland areas is such that it allows two growing seasons per annum. In the Highlands, Season (a) beans are planted in September and harvested in



January. In Season (b) beans are planted in February and harvested in July. In the dryer Lowland areas the Season (a) beans are planted in October and harvested in February and for Season (b), planting takes place in March and harvesting in August. The direct impact of these conditions on climbing beans is that, in the Highlands, excessive rain may cause stunted growth and reduced yield, while in the Lowlands the lower and more variable rainfall (and higher temperatures) – particularly in the 2012 season - were reported to have resulted in poor yields.

Consequently in the Lowlands, particularly in Ngoma and Bugesera, farmers were interested in testing improved bush bean varieties, because they felt that, generally, bush beans are more drought resistant and hardy than climbing beans. Nevertheless interest in (and support for) the Climbing Bean Project was high in all the Lowland Districts and particularly in Nyagatare. The differences in soil types between the Highland and Lowland zones are also marked. The one common feature of the soils in both the Highlands and the Lowlands (with the exception of the wetland Histosol soils) is their low base status, low pH and related low inherent fertility. This characteristic highlights the importance of the soil fertilization and amelioration component of the Climbing Bean Project as outlined in 5.2 below.

Overall it can be concluded that climbing beans are very well suited to the Highland conditions with the limitation of occasional excessive rain and low inherent fertility of the soil, while the Lowland areas, although less well suited because of the dryer and hotter conditions, remain viable areas for climbing bean production. It is recommended that the Climbing Bean Programme consider the promotion of improved bush bean varieties in the hotter and drier Bugesera and Ngoma Districts.

**Table 11: Agro-ecological zones (and their defining climatic and soil characteristics) in which the Climbing bean Project are represented.**

District	Agro-ecological zone and (number)	Altitude (m.a.s.l)	Rainfall (mm/a)	Annual mean temperature ( C )	Dominant soils (USDA soil Orders and FAO soil Units)
Burera	Bukeruka Highlands (6)	>1900	1272	16	<b>Ultisols</b> on upper slopes – mineral soils with acidic argillic horizons and low base status. <b>Histosols</b> in low-lying wetland areas with high organic matter and prone to wetness.
Muzanze	Cone and High Volcanic Plains (4) Bukeruka Highlands (6)	>1900	1344 1272	17 16	<b>Inseptisols</b> – mineral soils with acidic mollic, umbric or ochric “A” horizons. <b>Ultisols</b> on upper slopes – mineral soils with argillic horizons and low base status.
Bugesera	Eastern Savanna and Central Bugesera. (10) Mayaga and Bugesera Periphery. (9)	1000 - 1600	1020 1184	22 21	<b>Oxisols</b> – red/yellow, deep, well drained, leached mineral soils with high cation exchange capacity. <b>Ultisols</b> on upper slopes – mineral soils with argillic horizons and low base status.
Ngoma	Plateau and Ridges around the Eastern Savanna (9)	1000 - 1600	1068	20	<b>Oxisols</b> – red/yellow, deep, well drained, leached mineral soils with high cation exchange capacity. <b>Histosols</b> in low-lying wetland areas with high organic matter and prone to wetness.
Nyagatare	Eastern Savanna and Central Bugesera (10)	1000 - 1600	1020	22	<b>Oxisols</b> – red/yellow, deep, well drained, leached mineral soils with high cation exchange capacity.



District	Agro-ecological zone and (number)	Altitude (m.a.s.l)	Rainfall (mm/a)	Annual mean temperature ( C )	Dominant soils (USDA soil Orders and FAO soil Units)

## 5.6 Soil fertility

The climbing bean Project promotes the use of DAP (Di-ammonium phosphate), farmyard manure (FYM) and the inoculation of bean seed (to promote the development of nitrogen fixing bacteria on the roots of the climbing bean plants) as the main interventions to improve soil fertility in bean production. This component of the Project is successfully illustrating the importance of soil fertility in achieving the high potential yields of the improved climbing bean varieties.

The Project recommends an application of 1000kg/ha FYM as a fundamental component of crop fertilization. We observed widespread adherence to the application of FYM, although there were many cases where the level of application appeared to be well below the 1000kg/ha. Concern about the lack of local availability of FYM was frequently expressed at the Focus Group meetings. The value of the recommended integration of livestock into farming practices in the bean growing areas is therefore highlighted (see Section 5.5 for more detailed discussion on fertilization issues in climbing bean production).

The Climbing Bean Project distributes DAP granular fertilizer, at a recommended rate of 100kg/ha, free to farmers who's arable plots have been selected for demonstration units. The value of DAP is clearly demonstrated on these plots. The Focus Groups confirmed this but stressed that financial constraints prevented many farmers from using DAP and that access to production loans would greatly promote the use of fertilizers in bean production.

DAP is the world's most widely used phosphorus (P) fertilizer. It is popular because of its relatively high nutrient content and its excellent physical properties. DAP, which contains 18% N and 20% P is also distributed and subsidised by RAB for the promotion of maize production in the country.

An application rate of 100kg/ha (18kg P and 20kg N) is applied in the Climbing Bean Project which is adequate to sustain the P status in bean soils. However the 20kg of N (while essential for a maize or wheat crop) may be excessive for beans. The nitrogen needs of the bean crop are partially provided for by its own N fixing ability, especially when seed inoculation forms part of the bean production programme. The effectiveness of bean seed inoculation in improving soil nitrogen content has been shown in some Ugandan research to be limited. However the value of any "free" soil nitrogen, generated by nitrogen fixing bacteria in bean root nodules for both the bean crop and subsequent rotation crops such as maize, justifies the inoculation program.

DAP has the limitation that it contains no potassium (K), which together with N and P is an essential macro-nutrient for all plants including beans. There is a risk that constant double cropping (two crops in one year) with maize and beans will result in significant depletion of the available K in these soils.

The application of FYM as a fundamental component of crop fertilization is strongly supported. However its value in nutrient contribution, at the 1000kg/ha rate recommended in the Project, should not be overestimated. An application of 1000kg/ha of FYM provides about 6kg N; 2kg P and 7kg of K per ha. Of this, not all is available to the plant in the first season, but will be gradually released over time.

As an illustration of the suitability of the recommended fertilization regime for climbing beans, a 3.0t/ha crop of beans will remove (excluding foliage and root residues) about 100kg N; 18kg P and 36kg K /ha. The recommended applications of 100kg/ha of DAP, 1000kg/ha of FYM and the inoculation of bean seed should



provide 100+ kg N; 20kg P and 7kg K /ha. In very broad terms this indicates a slight excess on N in the form of DAP and a significant shortfall (depletion) of K.

Although a higher application rate of FYM would contribute to a balanced fertility level, the logistics of sourcing and applying more than 1000kg per ha is not practically achievable for the majority of climbing bean growers. All the major soil types on which climbing beans are grown (with the exception of the alluvial Holisols found in the low-lying wetland areas) are relatively acid soils with low base-status as a consequence of the highly weathered and leached nature of these landscapes. This acidity has the effect of “fixing” or limiting the availability of soil phosphorus (P) as an essential soil nutrient and increases the availability of water-soluble aluminium which is toxic to plant roots. Raising the pH of soils through liming, increases the availability of P and reverts soluble aluminium to a non-soluble (inert) form.

It is recommended therefore that the Climbing Bean Project consider investigating:

- The yield response to potassium (K) fertilization;
- An alternative to DAP as a source of soil phosphate in order to slightly reduce to level of N applied to beans. (This could be achieved by investigating the use of a suitable fertilizer mixture containing N, P and K elements.); and
- Varying levels of P fertilization (with DAP or an alternative P carrier).
- Including liming trials on some of the demonstration plots in the Highlands and possibly at Nyagatare in the Lowlands.
- The effectiveness of inoculation should be tested on selected demonstration plots.

These trials should be coordinated with the RAB’s initiative to promote Integrated Soil Fertility Management practices. The demonstration plots are the most suitable place for these additional trials.

## 5.7 Seed multiplication and distribution services

A key feature of the Climbing Bean Project is the multiplication and distribution of selected improved climbing bean varieties into the main bean growing Districts. Although the foundation seed is provided free, the seed multipliers have to return the equivalent amount of seed to the Project for free and then get paid for the remainder of their seed crop for distribution in the following season. The process followed in the multiplication and distribution of seed (as summarised in Table 12) is based on our discussions with the RAB Project manager and Project implementation team and provides a basis for assessing its successful implementation.

**Table 12: The process of seed production in the Climbing Bean Project**

Steps	Process	Responsibility	Place	Comment
1	Identification of farmers and quantities needed	RAB Technician staff working in bean program in partnership agronomist of sector and Cells	Site of the Project (Cell/Village)	The criteria of the select site depends on the crop rotation
2	Select foundation seed from the RAB breeding programme and prepare for distribution	RAB staff working in bean program	RAB station	This activities falls under the RAB Seed Program and Bean Program
3	Prepare seed grower contract	RAB Technician staff working in the Bean Program	RAB station	Standard contract document
4	Contract signed by farmers/Cooperatives for seed multiplication	Farmers/cooperatives	Site of the Project (Cell/Village)	
5	Contract signed by Head of Bean program	Head of Bean program	Agriculture Zone Division	This is done after approval of RAB staff working in Bean



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Steps	Process	Responsibility	Place	Comment
				program
6	Seed distributed to farmers for multiplication	RAB Technician staff working in bean program and extension agronomists of local government	Site of the Project (Cell/Village)	
7	Seed inspection during growing season	RAB Inspectors	Site of the Project (Cell/Village)	
8	Seed Certified under supervision of technicians	RAB Inspectors	Site of the Project (Cell/Village)	
9	Data collection for selected seed and storage	RAB Technician staff (bean program)	Site of the Project (Cell/Village)	
10	Payment arrangements for seed collected.	Head of Zone, Accountant	Agriculture zone Division	Quantities depend on the Project requirements for the next season
11	Payment made by transfer to the financial Banks (SACCOs, etc...)	Accountant	Agriculture zone Division and financial Banks (SACCOs, etc.)	The PI of the climbing bean Project prepares a memorandum and submits for payment.
12	Monitoring the payment and feedback to the Project leader	Climbing Bean Project staff	Agriculture Zone Division	

Source: RAB

The main improved varieties distributed for multiplication through the Project are as follows:

- Highland areas (Northern Zone): RW2070; RWV2872; RWV3006; RWV1129.
- Lowland areas (Eastern zone): MAC 24; MAC 39; MAC9.

The selection of varieties for the different climatic zones has been successful in that farmers interviewed all reported:

- **Substantially improved yields** compared to traditional bush bean varieties. Yield increases from around 1.0t/ha for traditional bush bean varieties to up to 3.0t/ha for the improved climbing bean varieties were reported. However, the recent period of below-average rainfall has resulted in significant yield reductions (particularly in the Lowland areas). Unfortunately yield estimates from the demonstration plots, for this last season, are not yet available to verify the extent of the impact of the drought. The impact has been severe enough to prompt some farmers in the Lowlands asking the Project to consider the testing of improved varieties of bush beans, which they think may be more drought resistant than the climbing bean varieties;
- **Excellent eating quality and nutritious value.** Many women respondents highlighted these characteristics of the improved climbing bean varieties as being very important to them from a household subsistence point of view as well as from a marketing perspective; and
- **High market demand** for these varieties. The popularity of the improved varieties amongst local community buyers was confirmed by many respondents. The vibrant and rapidly expanding informal export market of the bean varieties to neighbouring countries is also testament to their popularity in the market place.

The seed distribution service, with all its logistical complexity, has been efficient and effective in its implementation. The one concern expressed at focus group meetings and by individual farmers interviewed was the tendency for seed to be delivered late. The difficulty of delivering seed (and other inputs such as



DAP) should guide decisions about the rate of expansion of the Project. Care should be taken not to be too ambitious about expansion but rather to focus on the quality and content of the services and support the Project provides to participating farmers. There are high levels of expectation and enthusiasm amongst farmers about the Climbing bean Project but an “overstretched” Project with unfulfilled commitments could negatively impact on this enthusiasm.

It is therefore recommended that the focus of the remainder of the Project should be on modest expansion while consolidating on the quality and content of service, particularly with delivery of inputs and the training programmes.

### 5.8 Crop and livestock farming integration

The use of FYM is an integral component of sustainable soil fertilization for climbing bean production. The Climbing Bean Project and other RAB programmes have raised awareness of the importance of the use of FYM in crop production and consequently farmers are facing increasing difficulty in sourcing adequate FYM locally. The promotion of livestock production integrated with the Climbing Bean Project is being well received and widely supported.

It is recommended that the Project place more emphasis on this initiative in the future by involving the livestock divisions of the Ministry of Agriculture more formally in the programme.

### 5.9 Training and extension programs

The long-term sustainability and effectiveness of the Ministry of Agriculture’s Land Consolidation and Crop Intensification programmes, in general, and the Bean Program specifically, will be dependent on the strength and resilience of the Farmer Cooperative and Farmer Association, through which these programmes are channelled. To achieve this, the institutions require fully representative, well trained (and well mentored) leadership and management. Our discussions and interviews with the cooperative leaders pointed to the need for more training and capacity building in each of the leadership/management tasks, such as planning, budgeting, financial controls, reporting and production coordination.

The training related to the Project, which has been focused on seed multiplication and improved agriculture practices, has been achieved through field days, farmer exchange visits, training of local government agronomists (training the trainers) and by example on the selected demonstration units.

The success of the training program was evident when talking to farmers and their service providers about the Project and all its components. There was a clear, consistent thread of understanding about the Project, what it is trying to achieve, how it is being rolled out and who is responsible for the different components of the Project. This is particularly remarkable considering the major institutional restructuring that has taken place within the Ministry of Agriculture during the implementation of the Project and the complex interaction of the many contributing organization.

Farmers are enthusiastic to get more involved and receive more training to improve both their business and farming skills. The noted benefit of working together to assist each other in achieving production goals and learning better farming practices appears to have been positively influenced by the Land Consolidation program and the related Crop Intensification Program.

It is recommended that, despite the successes achieved to date, the training program should be continued to reach all of the targeted role-players and there is considerable scope for the expansion and intensification of the training program with the inclusion of financial aspects of commercialized bean production, crop marketing opportunities and marketing linkages and the involvement of agro-dealers.

The Project’s “training of trainers” has also been successful. It was noted in discussion with Local Government officials involved in the Project that there was clear understanding of the objectives of the Project and their specific role as Agronomists in the training and extension program. This applied at the Sector, Cell and Village levels. There were a few occasions when cell Agronomists indicated their interest in additional (more comprehensive) training on the technical aspects of the Project.



The study tours to other climbing bean growing areas are highly popular and informative and there were many requests for these to be continued for farmers within the Project cooperatives who have not yet participated in such tours.

### 5.10 Bean marketing and “value chain” opportunities

The success of the RAB Bean Programme in general and the Climbing Bean Project in particular, is resulting in very large areas of bean production in Rwanda. For example the Northern Agricultural Zone is planning 123,000 ha of climbing bean production for the 2013 / 2014 season. This could equate to an equivalent 300,000 tons of beans or more. At present the majority of beans are either consumed or marketed locally and an increasing amount is being exported informally into neighbouring countries.

Concern was expressed by some respondents that the local market will soon become saturated (an indication that food security is being achieved) and that more formal marketing opportunities, including formal export opportunities will need to be explored. This and local value-adding opportunities should be a specific focus of the Project in the proposed three year extension of the Project.

Local value-adding to the climbing bean enterprise offers exciting opportunities for local economic expansion, job creation and commercialization of the agricultural industry. The type of local value-adding that could be considered is the establishment of a commercial cleaning and packaging plant in which participating grower cooperatives could be minority shareholders in a joint venture with a commercial company and earn a modest dividend when the operating company is producing a sustainable profit. It is recommended that the Climbing Bean Project consider such opportunities for local processing and packaging of beans and opportunities for formal export marketing.

### 5.11 Production input subsidies

At present the climbing bean programme limits input subsidies to the demonstration plot participants and some “poorest of the poor” farmers. The subsidies include free improved seed, free DAP fertilizer and plant protection chemicals. The concept of such subsidies providing an incentive for farmers to participate in the Demonstration Units initiative is strongly supported. The subsidy to the poorest of the poor farmers is also understandable. However care must be taken not to set a precedent that result in the expansion of the subsidy to other growers. Government’s clear policy on commercialization of agriculture and the phasing out of subsidies must be applauded and fully supported by the Climbing Bean Project. The proposed commercialisation drive proposed below will assist in this regard.

It is recommended that the Project continue with its policy of providing free inputs to the demonstration plots and to the “poorest of the poor” farmers but should not be expanded to other farmers. The success of the Project could be jeopardised if an element of dependency on the Project arose amongst climbing bean farmers.

### 5.12 Agro-dealer network

The concept of an agro-dealer network supporting the expansion of the climbing bean programme is excellent and will contribute significantly to the commercialisation of the programme thus reducing the burden of government to be responsible for all aspects of agricultural development. However there were reports of farmers being reluctant to purchase seed and fertilizer from agro-dealers while there was still subsidised seed and fertilizer being supplied to the demonstration units and some other growers by RAB.

It was also reported that the agro-dealer system was being undermined by price differentials between seed suppliers because of different government subsidy levels. For example, Harvest Plus, a subsidised NGO, sells seed at 400RWF while Win-Win’s price is 600RWF.

It is strongly recommended that subsidy anomalies be phased out as quickly as possible to allow normal commercialisation to be established and to allow, the agro-dealer network to expand.

A comment was made during the stakeholder discussions that the quality of seed being multiplied and sold on to farmers by the NGO Harvest-Plus was deteriorating because of no government inspection of the bean



seed crops. We were not able to substantiate this claim. However, it is recommended that as a principle, no seed multiplication should be authorised without a government seed inspection programme in place.

### 5.13 Climbing bean production commercialisation

The climbing bean industry in Rwanda has the potential to be a significant contributor to economic growth in the country. To achieve this there must be a concerted focus on the commercialization of the crop. At present, despite the enormous interest in climbing bean production, it is still seen by many growers as a subsistence crop with a possible cash surplus that can contribute to essential household needs. Farmers interviewed confirmed however that growing climbing beans gave them cash to pay for household essentials such as school fees.

Commercialization implies incurring unsubsidised input costs and the application of good agronomic management practices in order to optimize the yield potential of the improved bean varieties and thereby enjoying a net income over costs.

Rural subsistence farmers are by nature risk averse and the concept of providing for all inputs costs (in advance) or raising production loans for crop inputs is not readily accepted. The acceptance of production loans will depend on the perceived associated risks such as climatic risk, input supply risk, technical support risk, crop storage risk and marketing risk. To assist farmers overcoming these concerns the climbing bean Project should consider including a financial and marketing component to both the demonstration units and the training program.

The financial component of the demonstration units could consist of a production program showing unsubsidized production costs and achievable yields under good agronomic management, the income from the sale of the crop and the net cash benefit. This simple gross margin analysis will show the benefit of paying for fertilizer and plant protection chemicals and even for seed in the future.

It is also important for the Climbing Bean Project to be able to illustrate that climbing bean production on a commercial scale is viable and sustainable without subsidy and to demonstrate the benefits and risks in order to facilitate access to microcredit. Without commercially available financing of production inputs which are user-friendly and affordable, the commercialisation of agriculture, will struggle to gain momentum.

These commercial elements of bean production should also be included in the formal training programmes for farmers and local government support staff to demonstrate more proactively the commercialisation philosophy (break the subsistence mind-set).

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The following section presents conclusions and recommendations that apply to institutional, management and training, technical and commercialisation issues from the findings of the Assessment. These conclusions and recommendations are also applicable if the Project is to 'scale up' in future.

### Project management and implementation

A more thorough assessment of Project managers, the introduction of additional Project management support tools and more extensive training of Project Accountants could be considered as measures to address the earlier mentioned constraints. Each of these is discussed briefly below:

- **Project manager assessments:** There needs to be recognition that Project management is a skill where some and not all excel. Experience in a technical area also does not translate into experience in Project management and a more rigorous assessment of an individual's project management capacity and capability should be given prior to Projects being allocated. A project manager assessment based on accepted and standard criteria could be used to evaluate prospective project managers in future in order to determine whether their experience is appropriate given that particular Project challenges;
- **Project classification tool:** A project classification tool can be used to assess a
- project's complexity according to the following criteria (for example):



- Number of stakeholders involved;
- Whether the project is international, national or local;
- The experience of the project manager; and
- The project budget and team size.

The Project classification tool could be aligned with the Project assessment above so that prospective Project managers are ranked according to the highest Project classification level appropriate for their experience.

- **More extensive training on financial management:** It is clear from the AGRA audit report as well as from an interview with the project accountant that training by AGRA may not have been sufficient for the type of financial control and management expected.

### Project extension

The implementation of the Project has been significantly impacted by the restructuring of the Ministry of Agriculture and the establishment the Rwandan Agricultural Board (RAB). It is the view of the assignment Team that the Project has, under the circumstances, made remarkable progress. However because of the delays caused by the institutional restructuring, we believe it would be inappropriate to discontinue the Project after three years.

The interest and enthusiasm shown by growers and their communities for the Project was abundantly clear in all our focus group meetings and interviews. However the benefits of the Project's interventions will not be transferred in an effective and sustainable way in just a few years and we strongly recommend that the program be extended by a further three years to 2016. This extension would not only consolidate the successes achieved with the existing programme and all its components but would also allow for the incorporation of the recommended additional or modified components of the Project.

### Project staffing

The RAB staff involved in this Project, who either assisted with our assessment or with whom discussions or interviews were held, showed remarkable enthusiasm for the Climbing Bean Project and are committed to its objectives. It was noted though that all staff (SHP and Seed Programme) have other commitments within RAB and are unable to give the Climbing Bean Project their full attention. Their capacity to implement all components of the Project timeously has been negatively impacted at all levels in the Project – from overall project management through to the direct support to farmers at Local Government level.

It is recommended that RAB give consideration to the prioritisation of commitments of key personnel to allow them more time to focus on the Climbing Bean Project or, better still, to allow certain key team members to be free of all other duties and concentrate entirely on the Project;

It is also recommended that the focus of the extended period of the Project should be on modest expansion while consolidating on the quality and content of service, particularly with delivery of inputs and the training programmes.

### Training programs

It was clear from the focus group discussions and farmer interviews that farmers involved in the Project had 'bought-in' to its objectives through the training and extension provided. Farmers are enthusiastic to get more involved and receive more training to improve both their business and farming skills. The noted benefit of working together to assist each other in achieving production goals and learning better farming practices appears to have been stimulated by the Land Consolidation initiative and the Crop Intensification Program.

However this interest in and support for the Project's training program has resulted in widespread request from growers and service providers (such as local government Agronomists) for expanded and intensified training in the technical and institutional aspects of the Project.



- It is recommended that, despite the successes achieved to date, the Climbing Bean Project consider applying resources to assist farmer organisations in building their leadership and management capacities and gaining experience in their implementation;
- The training program should be continued to reach all of the targeted role-players and there is considerable scope for the expansion and intensification of the training program with the inclusion of marketing opportunities and marketing linkages, financial (commercialisation) aspects of bean production and the involvement of agro-dealers;
- Further training of Local government agronomists (training the trainers) should form part of any training program extension;
- The study tours to other climbing bean growing areas should be continued for farmers within the Project who have not yet participated in these tours; and
- More extensive training for project accountants on financial management and reporting is needed.

### Staking

The difficulty farmers are experiencing in accessing adequate staking material is causing a serious “bottle-neck” to achieving the projected expansion of the Project. It is therefore recommended that:

- The Project consider providing additional support to the agroforestry initiative in order to make suitable planting material available to growers. This could be achieved by funding the establishment of additional agroforestry nurseries in each of the main climbing bean growing Districts and recommending to RAB that the staffing of the Agroforestry initiative be scaled up to meet this growing need;
- Napier grass planting material be distributed together with *Leucaena* and *Calliandra* to provide a short-term solution to the staking challenge while the slower growing *Leucaena* and *Calliandra* establish themselves on the farms;
- Alternative methods of staking e.g. stringing on trellises; be further investigated and demonstrated; and
- Alternative synthetic material for stakes, such as extruded plastic should be investigated. This investigation should include cost estimates and the logistics of having large numbers of stakes manufactured and delivered in a viable and sustainable way to climbing bean farmers in the main.

### Soil fertility

There are a number of soil fertility issues that may be limiting climbing bean yields in the Project areas. It is recommended that the Climbing Bean Project consider investigating:

- The yield response to potassium (K) fertilization;
- An alternative to DAP as a source of soil phosphate in order to slightly reduce to level of N applied to beans. (This could be achieved by investigating the use of a suitable fertilizer mixture containing N, P and K elements.);
- Varying levels of P fertilization (with DAP or an alternative P carrier);
- Including liming trials on some of the demonstration plots in the Highlands and possibly at Nyagatare in the Lowlands;
- These trials should be coordinated with the RAB’s initiative to promote Integrated Soil Fertility Management practices;
- The effectiveness of seed inoculation should be tested on selected demonstration plots.
- The demonstration plots are the most suitable place for these additional trials; and



- It is recommended that the Project place more emphasis on livestock integration by involving the livestock divisions of the Ministry of Agriculture more formally in the Program. This is important to improve the availability of FYM.

### **Climate**

It is recommended that the Climbing Bean Programme consider the promotion of improved bush bean varieties in the hotter and drier Bugesera and Ngoma Districts.

### **Commercialisation, marketing and value adding**

It is recommended that the Climbing Bean Project consider such opportunities for local processing and packaging of beans and opportunities for formal export marketing. It is also recommended that the Project continue with its policy of providing free inputs to the demonstration plots and to the “poorest of the poor” farmers but not expanded to other farmers. The success of the Project could be jeopardised if an element of dependency on the Project arose amongst climbing bean farmers. To assist farmers in gaining a better understanding of a more commercial approach to bean production, the Climbing Bean Project should consider including a financial and marketing component to both the demonstration units and the training program.

The financial component of the demonstration units could consist of a production program showing unsubsidized production costs and achievable yields under good agronomic management, the income from the sale of the crop and the net cash benefit. This simple Gross margin analysis will show the benefit of paying for fertilizer and plant protection chemicals and even for seed in the future.

It is also important for the Climbing Bean Project to be able to illustrate that climbing bean production on a commercial scale is viable and sustainable without subsidy and to demonstrate the benefits and risks in order to facilitate access to microcredit. Without commercially available financing of production inputs which are user-friendly and affordable, the commercialisation of agriculture, will struggle to gain momentum.

These commercial elements of bean production should also be included in the formal training programmes for farmers and local government support staff to demonstrate more proactively the commercialisation philosophy (break the subsistence mind-set)



### Rapid Assessment assignment limitations

The assignment Team would like to note this assignment, although a Rapid Assessment, could perhaps be extended to be completed within a 45-60 day timeframe given constraints in regard to the scheduling of travel (to site and on site) and the coordination of meeting with various stakeholders who often have difficulty in dedicating the necessary time to interviews. We feel that additional time on site with stakeholders and sufficient time for later follow would add significant value to a Rapid Assessment assignment.

### GOLDER ASSOCIATES AFRICA (PTY) LTD.

Justin du Toit  
Project Manager

Jon Howcroft  
Project Reviewer

JdT/JR

Reg. No. 2002/007104/07

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# **APPENDIX A**

## **Document limitations**



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# **APPENDIX B**

## **Overview of Climbing Bean Project objectives, activities, indicators and targets**



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	Activity	Outcomes	Indicators	Target
Objective 1	1. Conduct pre-basic (primary) seed production.	1. Breeders obtain breeder quality seed for distribution to RADA, COAMV, IMBARAGA, RWASCO, selected farmer cooperatives for secondary multiplication.	Quantity in tons of breeder seed for secondary multiplication produced each year and distributed.	- 10 tons of breeder seed (1 ton for each variety) is produced and distributed annually for secondary multiplication.
	2. Train farmers and cooperatives on seed multiplication and business skills	2. Farmers acquire skills and use them in producing quality seed to improve yields as well as gaining income from seed production business.	% of trained farmers who demonstrate knowledge and apply seed multiplication techniques in their fields.	- 200 farmers directly trained each year.
Objective 2	3. Distribute secondary seeds to farmers for commercial multiplication.	3. Increased farmers' access to improved climbing bean seed varieties.	Acreage of land planted with improved climbing bean varieties. Quantity in tons of improved bean seeds produced from farmer plots.	- At least 50 MT of seed is produced by RADA, COAMV, BAMPOREZE, and contract secondary multipliers each year of the project implementation.
	4. Train farmers in N-fixing agro-forestry nursery preparations and maintenance, its use in staking and other additional advantages.	4: Farmers' knowledge and application of N-fixing agro-forestry is enhanced in the targeted project regions.	Average quantity of nitrogen fixed per hectare of farmers' gardens as a results of the nitrogen fixing trees planted.	- 6,700 farmers are trained each year directly or indirectly through videos, study tours and field days.
	- Guide farmers to plant N-fixing trees, on- farm terraces, farm borders or in association with climbing beans.			- One-third of the seedlings are planted each year until all the 1000 seedlings are planted in the 3 years of the project.
Objective 3	5. Training of farmers on modern agronomic innovations and practices.	5: Farmers have gained skills and appreciated the benefits of applying phosphorus fertilizer, farm yard manure and other agronomic practices.	% of trained farmers who using phosphorus fertilizers, FYM and other agronomic practices.	- 33% (of 20,000 farmers) of the farmers are trained each year directly, through trained ToTs and through university students - About 400 demonstration gardens are planted and visited by 20,000 farmers in 3 years.
Objective 4	6. Conduct training workshops for farmers on business skills/entrepreneurship.	6. Increased knowledge of farmers in bean production and commercialisation.	Number of trained farmers who produce and trade in beans.	- At least 20,000 pieces of promotional materials are produced and distributed to 7,000 persons and all public places by end of 3 <sup>rd</sup> year.



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Activity	Outcomes	Indicators	Target
			- At least 200 farmers are trained every year on commercial production of climbing beans.



# **APPENDIX C**

## **List of stakeholders consulted**



## RAPID ASSESSMENT OF CLIMBING BEAN PROJECT - FINAL REPORT

Date	Name of Institution	Location	Representatives of institutions	Designation
14 August 2013	Alliance for a Green Revolution in Africa (AGRA)	<b>Country:</b> Kenya <b>City:</b> Nairobi,	Mr Emmanuel Rutsimba	Program Officer: Monitoring and Evaluation
			Ms Josephine Njau	M&E Program Assistant
			Dr Bashir Jama	Head of Soil Health Program
			Mr David Kimani	Program Data Analyst, SHP
			Mr Qureish Noordin	Program Officer – Extension Support Function: Soil Health Program
			Mr Abednego Kiwia	Program coordinator: Soil Health Program
			Dr David Ameyaw	Head of Monitoring and Evaluation
			Ms Mary Njorogenda	
15 August 2013	Rwanda Agricultural Board	<b>Country:</b> Rwanda <b>City:</b> Kigali	Dr Tenge Ngoga	Principal investigator <a href="mailto:ngogatenge@gmail.com">ngogatenge@gmail.com</a> +250 78 840 1707
			Mr Jules Kazungu	Researcher <a href="mailto:Kazjules2@yaoo.fr">Kazjules2@yaoo.fr</a> +250 78 858 9224
16 August 2013	Rwanda Agricultural Board	<b>Country:</b> Rwanda <b>City:</b> Kigali	Mr Charles Semahoro	Chief accountant
16 August 2013	Win Win Agri-tech Ltd	<b>Country:</b> Rwanda <b>City:</b> Kigali	Mr Ignace Nyiringabo	Chief Executive Officer <a href="mailto:ignanyiri@yahoo.fr">ignanyiri@yahoo.fr</a> +250 78 874 8077
			Mr Aime Claude Ndisaba	Sales and Marketing Manager <a href="mailto:Naimeclaude@yahoo.fr">Naimeclaude@yahoo.fr</a> +250 78 862 1075
19 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Musanze <b>Region:</b> Northern <b>Sector:</b> Remere	Mr Jean Claude Izamuhaye <a href="mailto:jizacsin@yahoo.fr">jizacsin@yahoo.fr</a> +250 78 373 8830	Head of Northern Agriculture Zone
19 August 2013	Twunge ubumwe Association	<b>Country:</b> Rwanda <b>District:</b> Musanze <b>Region:</b> Northern <b>Sector:</b> Remere <b>Cell:</b> Murandi	Ms Nyilabagenolo Angela	Farmers and members of the Twunge ubumwe Association
			Mr Ndagijimama J.Nepo	
			Mr Nsengiyumva Bernard	
			Ms Nikubwe Pourcherie	
			Mr Munyakabare Eugene	
			Mr Nsabimana Noel	



## RAPID ASSESSMENT OF CLIMBING BEAN PROJECT - FINAL REPORT

19 August 2013	Local Government	<b>Country:</b> Rwanda <b>District:</b> Musanze <b>Region:</b> Northern <b>Sector:</b> Remere <b>Cell:</b> Murandi	Mr Eric Uwumuriza	Cell Agronomist
			Mr Florian Nsabi Nama	Sector Agronomist
19 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Musanze <b>Region:</b> Northern <b>Sector:</b> Remere	Ms Esperance Nhatgekemana nyiraespe2006@yahoo.fr Tel: (+250) 78 767 6573	RAB technician in the bean programme
20 August 2013	Dushirehamwe Cooperative	<b>Country:</b> Rwanda <b>District:</b> Burera <b>Region:</b> Northern <b>Sector:</b> Gitovu <b>Cell:</b> Renonga <b>Village:</b> Mubuga	Ryumugabe Zheogeme	Members of the farmer cooperatives
			Nyinamkuzu Rwanda	
			Mukamkwa Kuzi	
			Nyiramba M gutre	
			Nukashema Anyesi	
			Mutababara Gilde	
			Zaninka Vestine	
			Mukahirwa Charlotte	
			Mukamugiha Aline	
			Ntamagi ro Felidione	
Nyirahabuhaza Laurence				
20 August 2013	Individual farmer (Demonstration plot)	<b>Country:</b> Rwanda <b>District:</b> Burera <b>Region:</b> Northern <b>Sector:</b> Gitovu <b>Cell:</b> Renonga <b>Village:</b> Mubuga	Ms Felidiane Ntamagi ro	Climbing Bean demonstration plot on her land
20 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Burera <b>Region:</b> Northern <b>Sector:</b> Gitovu	Mr Edward Murwano murwano@yahoo.fr	RAB technician
20 August 2310	Local Government	<b>Country:</b> Rwanda <b>District:</b> Burera <b>Region:</b> Northern <b>Sector:</b> Gitovu	Mr Habumuremyi Evariste	Executive Secretary of Gitovu
20 August 2013	Urugaga Imbaraga	<b>Country:</b> Rwanda <b>District:</b> Musanze <b>Region:</b> Northern	Mr Joseph Gafaranga gafarangjo@yahoo.fr +250 78 842 3047	President of the federation
21 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Ngoma <b>Region:</b> Eastern	Mr Thomas Gakwavu t.gakwavu@yahoo.com	Agro-forestry Officer (Eastern Region)



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21 August 2013	Inkeragutabara Cooperative	<b>Country:</b> Rwanda <b>District:</b> Bugesera <b>Region:</b> Eastern <b>Sector:</b> Juru	Halerimana Turikunkiko Hamugisha Nshimiyimana Genusi Kundagusenga N.Rahafashimana Mukamana Bayesenge Murwashayaka N.Rahabimana Habumugisha Munyaneza Manishimwe Hiraza Bigirimana	Members of Inkeragutabara Cooperative
21 August 2013	Imbarutso za Karemba	<b>Country:</b> Rwanda <b>District:</b> Ngoma <b>Region:</b> Eastern <b>Sector:</b> Karemba	Mr Ndayambaje Alphonse Mr Nzeyimana Alexis Ms Benegusenga Bernadette Mr Bucyukunda Francois Mr Nzabonimana J.Bosco Mr Nkundabanyanga Oreste Mr Ntamushobora Joramu	Members of the Imbarutso za Karemba cooperative
21 August 2013	Individual farmer	<b>Country:</b> Rwanda <b>District:</b> Ngoma <b>Region:</b> Eastern <b>Sector:</b> Karemba	Mr Nzeyimana Alexis	One of the farmers that are involved in seed multiplication
21 August 2013	Local Government	<b>Country:</b> Rwanda <b>District:</b> Ngoma <b>Region:</b> Eastern <b>Sector:</b> Karemba	Mr Charles Bigirimana	Sector Executive Secretary
			Mr Elaste Nzabonimpa	Sector Agronomist
			Mr Ndayambaje Alphonse	Cell Agronomist
22 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>City:</b> Kigali	Mr Aimable Gatete Gatete.aimable@gmail.com +250 78 860 4393	Monitoring and Evaluation Officer
22 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>City:</b> Kigali	Mr Augustine Musoni afmusoni@yahoo.com (+250) 78 874 7932 (+250) 72 874 7932	Bean breeder and Head of the bean research program at RAB



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22 August 2013	Dukuka Duharnire Kujijuka cooperative	<b>Country:</b> Rwanda <b>District:</b> Nyangatare <b>Region:</b> Eastern <b>Sector:</b> Katabagemu	RUBANZABIGWI J Chrisostome MUKASAFARI Seraphine Ndayishimiye Remy Nyiradende Budensiyana Mukakabarira Donatira Mukarugangwa Titiphina Gasasira Cyprien Nakanyura Agnes Niramure JMV Uwimana Felicita Butera Teresifori Mukakibibi Agnes Mukamana Kadushime Violette Bihoyiki Odette Mwamarakiza Emmanuel Mugeshi Ruyenzi Ngayabatema Ndayisaba Dafroza Ntawuguranimana Nicola Mutezimana Mutamba Ruribikiye Bavakure Eliyas RUMANYIKA Fidel Nibazizane Eugen Dusenge	Members of the Dukuka Duharnire Kujijuka cooperative
22 August 2013	Individual farmer	<b>Country:</b> Rwanda <b>District:</b> Nyangatare <b>Region:</b> Eastern <b>Sector:</b> Katabagemu	Mr Vincent Ngayabatema	Individual farmer
22 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Nyangatare <b>Region:</b> Eastern <b>Sector:</b> Katabagemu	Mr Kanimba Augustin	Agro-forestry technician
22 August 2013	Rwanda Agriculture Board	<b>Country:</b> Rwanda <b>District:</b> Nyangatare <b>Region:</b> Eastern <b>Sector:</b> Katabagemu	Ms Musabyimana Scolaristique	RAB bean technician

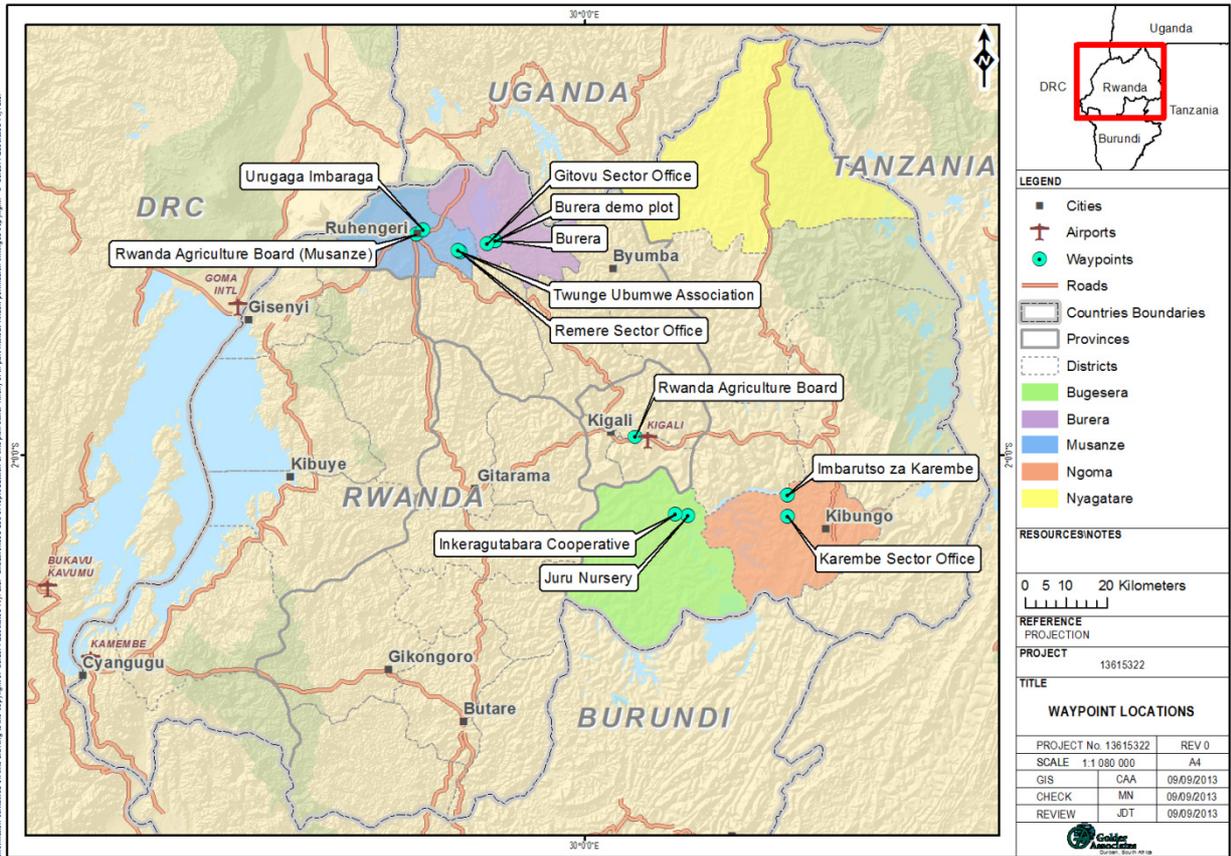


# **APPENDIX D**

**Map indicating location of stakeholder engagements**



# RAPID ASSESSMENT OF CLIMBING BEAN PROJECT - FINAL REPORT



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# **APPENDIX E**

## **Summary of Grant Narrative reports**



## RAPID ASSESSMENT OF CLIMBING BEAN PROJECT - FINAL REPORT

	2009 SHP – Grant Narrative Report – June 2010 to December 2010	2009 SHP – Grant Narrative Report – January 2011 to May 2011	2009 SHP – Grant Narrative Report – December 2011 to May 2012	2009 SHP – Grant Narrative Report – June 2012 to November 2012
Achievements	Working in four District (Bugesera, Nyangatare, Bugesera, and Rwere)	Climbing bean seed was produced for Ngoma and Bugesera that adapted to Semi-Arid conditions.	25 farmers and input sellers/ agro-dealers/ cooperatives were trained and learned bean post-harvest handling, storage, processing and marketing of bean products.	20 tons of pre-basic (primary) seed production has been conducted and distributed to secondary seed multipliers during the first two terms of the project where 20 ha of lands were cultivated.
	Established 384 demonstrations.	Distributed seed to farmers having consolidated their lands on 70 ha (Ngoma and Bugesera).	1,200 stakeholders including farmers, cooperatives, local government extensions and RAB staff were trained and learned the best on seed climbing bean agriculture practice and seed multiplication.	204 farmers and input sellers (agro-dealers), cooperatives, were directly trained and learned beans post-harvest handling, storage, processing and marketing of bean products.
	10ha for foundation climbing bean seed multiplication	Seeds used in the Northern District were acquired from local farmers and cooperatives to plant 250ha.	40 ha of climbing bean have been planted where 30 ha in the Northern Province (Musanze and Burera Districts) and 10 ha in the Eastern Province (Ngoma District).	Quantity in tons of improved seed produced by RAB partners (150 MT are targeted in 3 years).
	142 770 seedlings distributed for planting in three Eastern Districts. 22500 seedlings were produced in Rwerere District.	Inclusion of extension services under one institution (RAB) and involvement of various stakeholders (administration authorities, farmer cooperatives, etc).	24 trials demonstration have been established.	4,825 stakeholders including farmers, cooperatives, local government extensions and RAB staff were trained and learned the best on seed climbing bean agriculture practice and seed multiplication.
	Business and farmer organisation training provided.	Farmer's representatives have been trained on seed multiplication and are currently able to provide the amount required to fellow farmers in the North.	25 farmers have been trained in N-fixing agro-forestry nursery preparations and maintenance, its use in staking and other additional advantages.	258ha of climbing bean have been planted. 234,44ha in the Northern Province (Burera, Musanze, Rulindo and Gicumbi and Muhanga North District) and 23,56 ha in the Eastern Province (Ngoma District). So far, more than 41 trials demonstration have been established.
	10 tons of climbing bean seeds was distributed in the Northern Province and 4 tons in the Eastern Province.		1,600 seedlings have been planted during the 2012 B season (Feb., 2012 to May, 2012) at Burera and Ngoma District.	204 farmers have been trained in N-fixing agro-forestry nursery preparations and maintenance.



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	The MAC49, MAC44 and MAC9 was selected for Bugesera, Ngoma and Nyagatare Districts in the Eastern Rwanda and RWR2070 (Kaki) and Gasilida for Musanze and Rwerere in the Northern Province of Rwanda.		Farmers, cooperatives, local government extensions and RAB technicians, extensionist that attended training workshops for farmers on business skills entrepreneurship.	26,000 climbing bean seedlings have been planted during the 2013 A season (Sept., 2012 to Jan., 2013) at Burera and Ngoma District.
	Planted 15 hectares of foundation seeds were planted in Nyagatare, Ngoma and Bugesera and for the first time. 12 tons were distributed for planting climbing bean in the Eastern Rwanda.		At least 25 promotional materials produced and distributed to farmers.	1,828 farmers have actively participated in climbing bean cultivation including seed multiplications. The target of 200 farmers trained have been reached.
	240 Farmers have been trained and farmer facilitators trained at demonstrations sites for disseminating skills of modern agronomic innovations (planting in rows with specific plant spacing, using improved seeds and fertilizers, etc.)			At least 100 promotional materials produced and distributed to farmers.
<b>Challenges</b>	To acquire project facilities	Procedure to get inoculum	Unavailability of funds due to discussions on financial report.	Changing from ISAR to RAB because of moving staff from places and disturbance from administrative staff.
	Involving multiple stakeholders	Availability of inputs like inorganic fertilizers	Lack of farmer knowledge on improved inputs.	Acquiring proper project facilities and coordination of effort.
	Integrating various sectors (Agro-forestry, soil and water management program, bean programme, farmer cooperatives, and local administration).	Availability of staking material	Shortage of staking materials	Farmers poor knowledge on improved inputs including fertilizers and agricultural practices.
	Availability of inputs		Acquiring proper project facilities and coordination of effort.	Few Agro-dealers and far away.
				Shortage of staking materials for climbing beans. Lack of seed delivery systems for agroforestry. Climate constraints.



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<b>Lessons learned</b>	Farmers have a potential to increase yields through improved varieties, management and fertilization.	Farmers can raise agricultural productivity with the use of proper agricultural practices.	Increasing production through improved varieties, management practices and fertilizers.	Farmers realised inputs improved production.
	There were difficulties to use improved agricultural practices that are unknown to farmers.	Farmers can be organised and have common agriculture practices and marketing.	Farmers have accepted the new varieties and appreciate benefits of increased yields and income.	Land consolidation favours farmer organisations and cooperatives.
		Possibility for diversification		Farmers are starting to use agro-forestry to get stakes.
				Farmers organised in cooperatives are able to approach financial institutions.



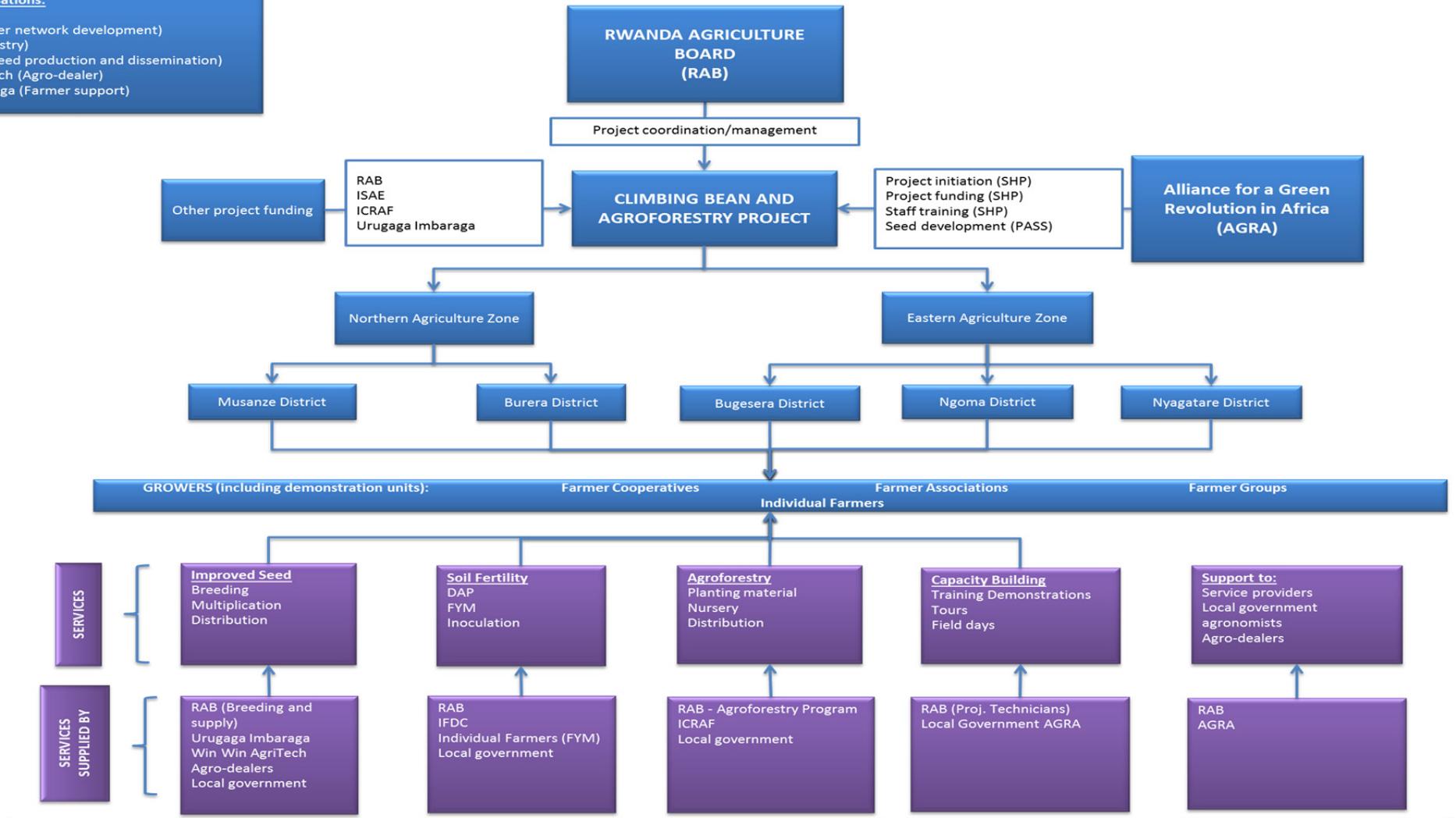
# **APPENDIX F**

## **Project implementation organogram**



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**Support organisations:**  
 ISAE (Training)  
 IFDC (Agro-dealer network development)  
 ICRAF (Agroforestry)  
 Harvest-Plus (Seed production and dissemination)  
 Win-Win AgriTech (Agro-dealer)  
 Urugaga Imbaraga (Farmer support)



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