CGIAR

RESEARCH PROGRAM ON Grain Legumes

COMMISSIONED EXTERNAL EVALUATION

INCEPTION REPORT
by
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Leveraging legumes to combat poverty, hunger, malnutrition and environmental degradation

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CGIAR RESEARCH PROGRAM ON Grain Legumes

LED BY ICRISAT Science with a human face

IN PARTNERSHIP WITH CIAT Centro Internacional de Agricultura Tropical International Center for Tropical Agriculture; ICARDA Science for Better Livelihoods in Dry Areas; IITA Research to Nourish Africa

and public and private institutes and organizations, governments, and farmers worldwide

INCEPTION REPORT

CRP Commissioned External Evaluation

of

CGIAR Research Program on Grain Legumes

22nd July 2015

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Executive Summary

The CGIAR Research Program (CRP) on Grain Legumes (referred to as Grain Legumes) is one of 15 CRPs. The Grain Legumes is led by the International Centre for Agricultural Research in the Semi-Arid Tropics (ICRISAT), which combines and coordinates the Research-for-Development (R4D) activities of eleven principal partners: four CGIAR centres (ICRISAT-lead centre, CIAT, ICARDA and IITA), a CGIAR Challenge Program (Generation), four major national agricultural research systems (EIAR, Ethiopia; EMBRAPA-Brazil, GDAR-Turkey and ICAR-India) and two USAID-supported legume Cooperative Research Support Programs, all of whom are leaders in grain legume research and development. Established in mid-2012, the program aimed to achieve five Intermediate Development Objectives (IDOs - Food Security, Income, Nutrition & Health, Productivity and Environment). The program was structured around eight Product Lines (PL) (i.e. technological innovations) intersecting five Strategic Components (SC), but in 2015, it was restructured along a more R4D output model into eight Flagship Projects (FP): 1) Managing Productivity; 2) Trait determination; 3) Trait deployment; 4) Seed systems, post-harvest processing and nutrition; 5) Capacity-building and partnerships; 6) Knowledge, impacts, priorities and gender organisation; 7) Tools and platforms for genotyping and bioinformatics; and 8) Management. Five FPs focus on R4D; FPs 5 and 6 are considered cross-cutting; FP 8 has an overarching objective. Over the three year period since its inception in July 1012, Grain Legumes has had a total budget of $140 million.

The CRP Commissioned External Evaluation (CCEE) aims to provide an independent assessment of the Grain Legumes, including retrospective analyses of performance against the aims and objectives set out in the initial CRP proposal; and a forward-looking element that will examine the likelihood of success of the second funding phase. As such, the evaluation may guide decision-making internally by the Grain Legumes and externally by donors; as well as feeding into decisions on the next phase of CRPs, to start in 2017. Six criteria are being considered within the evaluation, from the point of view of the activity *per se* and the extent to which the CRP assists in the implementation of the activity: Relevance; Efficiency; Quality of science; Effectiveness; Impact; and Sustainability. Three cross-cutting issues: Gender, Capacity-building, and Partnerships, will be explored to gauge added value of the programme-integrating activities among participants and impact outcomes for its intended beneficiaries. The scope encompasses all activities, structures and institutions within the Grain Legumes.

This evaluation of Grain Legumes has been commissioned by CRP management, managed by a CRP staff member specifically provided with the authority to manage evaluations, and overseen by an oversight body, which is set up specifically for the evaluation and includes independent members. To ensure the confidentiality of participants in the evaluation, information, e.g. from interviews and surveys, is kept in a secure location. The evaluation will use a variety of methods to address the evaluation criteria, including semi-structured interviews of Grain Legumes researchers and stakeholders; country field visits; review of a sample of Grain Legumes projects; focus

group discussions; self-evaluation exercises; short E-surveys; and an examination of documentation. The evaluation team consists of four independent evaluators looking specifically at the scope and focus of the CRP.

The initial evaluation and the inception report were prepared over a short time period; given the size, complexity and numbers of crops in the CRP, this mitigates against a clear cut outcome from the evaluation. A further shortcoming is the lack of "management and evaluation" data. The team has also had no access to an IEA Evaluation Analyst. These limitations reduce the team's ability to collect and analyse information. Additionally, the Management Entity has still not provided the Evaluation Team with consolidated details of contacts within the CRP, of external partners, of meetings and other events suitable for capturing multiple actors/stakeholders for interview.

Key dates and activities in the evaluation include: late-April 2015 and ongoing: Desk-top review of research projects and SKYPE interviews with Product Line Coordinators and other key actors; May 2015: Country visit to INRA (Morocco) and IITA/INRAB (Benin); June 2015: Attend meeting in Montpelier and country visit to ICRISAT (India – Hyderabad and New Delhi); end June/July 2015: Country visit to Ethiopia, Kenya, Rwanda and Malawi; June2015: Grain Legumes scientist E-survey; July 2015: Data analysis and additional data collection as required; Draft report and recommendations circulated for comments; August 2015: Presentation of findings - to CGIAR in Hyderabad; Final report.

This inception report sets out the proposals of the independent evaluation team regarding the purpose, objectives and scope of the evaluation, its target audiences and use; the evaluation objectives and approach; and the timeline and work-plan. This final draft incorporates stakeholder comments on the first draft.

Contents

Tables

Figures

Preface and Acknowledgments

This Inception Report has been prepared by all four team members. We thank the Grain Legumes Management Entity staff Drs Noel Ellis and G.G. Koppa for attending to our not inconsiderable number of requests for information, and to those mentioned in the list of persons contacted for providing their time and opinion during the preparation of this report. The short timelines during its development, which was concurrent with the actual evaluation activities, meant that this Inception Report was not reviewed by the Evaluation Oversight Committee, or directly by the Independent Evaluation Arrangement.

Acronyms, Abbreviations and Glossary

A4NH	CGIAR Research Program Agriculture for Nutrition and Health
ARR	Average Rate of Return
BMGF	Bill & Melinda Gates Foundation
CB	Consortium Board
CC	Cross-cutting area
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCEE	CRP Commissioned External Evaluation
CIAT	Centro Internacional de Agricultura Tropical
CGIAR	Consultative Group of International Agricultural Research
CO	Consortium Board Office
CROR	Cumulative Rate of Return
CRP	CGIAR Research Program
CWANA	Central and West Africa and North Africa
EIAR	Ethiopian Institute of Agricultural Research
EMBRAPA	Brazilian National Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária
FC	Funding Council
FP	Flagship Project
GDAR	General Directorate of Agricultural Research (Turkey)
Grain Legumes	CGIAR Research Program on Grain Legumes (grain legumes are legume crops where the seed is consumed for food notwithstanding their alternative uses)
IAC	Independent Advisory Committee
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in Dry Areas
ICRISAT	International Centre for Agricultural Research in the Semi-Arid Tropics

IDO	Intermediate Development Outcome
IEA	Independent Evaluation Arrangement
IITA	International Institute of Tropical Agriculture
IMOD	Inclusive Market Oriented Development
IP	Intellectual Property
ISC	CRP Independent Steering Committee
ISPC	Independent Science and Partnership Council
KARI	Kenya Agricultural Research Institute
LAC	Latin America and the Caribbean
LIL	USAID Feed the Future Legume Innovation Lab
M&E	Monitoring and Evaluation
MRR	Marginal Rate of Return
MU	Management Unit
N2AFRICA	Large scale, science-based "research-in-development" BMGF- funded project focused on putting nitrogen fixation to work for smallholder farmers growing legume crops in Africa
NARS	National Agricultural Research Systems
NGO	Non-government Organisation
OC	Oversight Committee
OT	Output Target
PIA	Program Implementation Agreement
PIM	CGIAR Research Program on Policies, Institutions and Markets
PL	Product Line
PLC	Product Line Co-ordinator
PMC	Program Management Committee of the CRP
PMIL	USAID Feed the Future Peanut and Mycotoxin Innovation Lab
PMU	Program Management Unit of the CRP

POWB	Plan of Work and Budget
PPA	Participant Program Agreements
PVS	Participatory Varietal Selection
R&D	Research and Development
R4D	Research for Development
RMC	Research Management Committee
ROR	Rate of Return
SC	Strategic Component
SLO	System Level Outcome
spp	Species
SRF	CGIAR Strategy and Results Framework
SSA	Sub-Saharan Africa
SSEA	South and Southeast Asia;
TL I	Tropical Legumes I
TL II	Tropical Legumes II
TL III	Tropical Legumes III
TOR	Terms of Reference
USAID	United States Agency for International Development
W1	Window 1 (funding) unrestricted funding managed by the CGIAR Fund
W2	Window 2 (funding directed to a CRP by donors through the CGIAR Fund)
W3	Window 3 (funding directed by donors through the CGIAR Fund to a specific project managed by one or more center)

Glossary

CGIAR Consortium: The CGIAR Consortium is an international organization that, together with the CGIAR Fund, advances international agricultural research for a food secure future by integrating and coordinating the efforts of those who fund research and those who do the research.

CGIAR Fund: The CGIAR Fund is a multi-donor trust fund that finances CGIAR research guided by the Strategy and Results Framework. The CGIAR Fund is administered by the **World Bank**, as Trustee, and governed by the Fund Council, a representative body of Fund donors and other stakeholders. The Fund Council is the decision-making body of the CGIAR Fund.

CGIAR Independent Evaluation Arrangement: The CGIAR Strategy and Results Framework calls for results-based management. This sets out the results to be achieved, and systematically directs capacities and investments towards delivering them. Independent evaluation ensures that all parts of the CGIAR system are held accountable for their performance. The CGIAR Independent Evaluation Arrangement (IEA) is the totality of the provisions of the CGIAR Policy for Independent External Evaluation which was adopted by the Fund Council and became effective on 1 February 2012. The policy addresses the independent external evaluation of the CGIAR as a whole, and of its ongoing and completed policies, programs, and institutional entities, in particular the CGIAR Research Programs.

CGIAR Strategy and Results Framework (SRF): This defines CGIAR System-Level Outcomes or SLOs as high-level goals, and Intermediate Development Outcomes (IDOs), which are intended to measure contributions towards the SLOs.

The **Independent Science and Partnership Council** (ISPC): Advises Fund donors on major science issues. The ISPC is a panel of world-class scientific experts chosen by the Fund Council to provide independent advice.

CRP staff: Staff who, funded from the CRP by funds not allocated to a centre, are involved in a formal way with the conduct of the CRP (Director, CRP; Senior Program Manager, Gender Specialist, Product Line Coordinators, Flagship Project Coordinators, Researchers)

Oversight Committee: An Oversight Committee has been set-up to work with the CRP Management, evaluation manager to ensure good communication with, learning by, and appropriate accountability to primary evaluation clients and key stakeholders, while preserving the independence of evaluators.

1. Introduction

The purpose of the CRP (CGIAR Research Program) Commissioned External Evaluation (CCEE) of Grain Legumes is to provide essential evaluative information for decision-making by Program Management and its funders on issues such as extension, expansion and structuring of the program and adjustments in relevant parts of the program.

This Inception Report focuses on providing a brief summary of the background, current context and our proposed undertakings that are relevant to the effective External Evaluation of the CRP on Grain Legumes (Grain Legumes). This information is provided to ensure that a balanced and unbiased approach is maintained during the evaluation. This is important as we address the parallel objectives of ensuring accountability to the various external stakeholders in the CRP (in particular to funding agencies, but also to society in general), and making sure that, at the same time, learning through program improvements can be effected. The independent viewpoints presented during the evaluation may also inform the development of a full proposal for future CRP funding.

Within this Inception Report we present our approach towards the Independent Evaluation of the CRP Grain Legumes. Of the 15 CRPs of which Grain Legumes is one, the CGIAR's Independent Evaluation Arrangement (IEA) will manage 10; the other five are commissioned by their respective CRP through the agency of their Lead Centre. A degree of bureaucratisation and mimicry of evaluation is inevitable, in order that the Evaluations of the CRPs be comparable between each other. This Inception Report commissioned by the Grain Legumes, follows the structure of other Inception Reports, but deviates in that it is more succinct, to the point, and with a major focus on the justification for, and elaboration of, the evaluation methods to be employed. As one of the last Independent Reviews to be commissioned, timing is a constraint within the requirement to complete by the end of July.

The following outlines the structure of this Report:

Section 2 provides our understanding of the context to this review; Section 3 the purpose and scope; Section 4 outlines the evaluation framework and criteria; Section 5 following the reason for their choice presents the proposed methodology, data collection, and analysis; Section 6 the organisation, timing, quality assurance and limitations of the evaluation, Section 7 the evaluation governance: roles and responsibilities, and Section 8 the expected outputs and their dissemination. We provide Appendices 1-5 with further details on the evaluation matrix and questions to be posed, our team member profiles, lists of persons consulted, and lists of projects that will be reviewed in detail.

The specific purpose of the CCEE of Grain Legumes, taken from the TOR is to provide essential evaluative information for decision-making by Program Management and its funders on issues such as extension, expansion and structuring of the program and adjustments in some aspects of the program.

The main stakeholders of this evaluation are the management of Grain Legumes, all participating Centres, partners associated to the Program, the CGIAR Fund Council, and the Consortium Board.

Stakeholders will be consulted throughout the evaluation through structured interviews, surveys, site visits, and through reference groups where considered appropriate.

2. Context

2.1 The CGIAR system and CGIAR Research Programmes

The CGIAR is a global agricultural research partnership that has evolved from a group of four research Centres in 1971 to 15 today, together with other entities such as the CO, FC, IEA and ISPC, with a presence in many countries.

The CGIAR started a major reform process in 2009, moving away from Centre-focussed programs and activities, culminating in the establishment of new structures: a central CGIAR Fund, a CGIAR Consortium, and a Global Conference on Agricultural Research for Development, which were established to promote effective, targeted investment and to build partnership, capacities and mutual accountabilities at all levels of the agricultural system so as to ensure that today's agricultural research will meet the needs of the resource-poor end user. The reform process helps to refine regional and global agricultural research priorities, as identified by different stakeholder groups and representatives in each region in an inclusive manner http://www.egfar.org/gcard).

One outcome of the reform is the CGIAR Strategy and Results Framework (SRF) which defines CGIAR System-Level Outcomes or SLOs as high-level goals, and Intermediate Development Outcomes (IDOs) which are intended to measure Centre contributions towards the SLOs. The current four SLOs are:

Reducing rural poverty (SLO1)

Improving food security (SLO2)

Improving nutrition and health (SLO3)

Sustainable management of natural resources (SLO4)

In parallel was an introduction of cross-CGIAR Research Programs (CRPs), which now cover most of the CGIAR research portfolio. There are currently 15 CRPs, each led by a single CGIAR Centre. CRPs typically contain a mixture of activities, some which represent continuations of previous work ('legacy activities') and others which are new although still incorporating on-going research so as to not lose likely returns to past CG investment.

These CRPs are funded as follows:

W1 (Window 1) through unrestricted funding managed by the Fund

W2 (Window 2) funding directed by donors through the Fund to a specific CRP

W3 (Window 3) funding directed by donors through the Fund managed by a specific Centre bilateral donor projects, with defined objectives and timeframes; other contributions, for example cash or in-kind contributions from partner countries to Centres.

One of the CGIAR Research Programs is on Grain Legumes (which is referred to as Grain Legumes) and is led by ICRISAT which combines and coordinates research-for-development activities of eleven principal partners: four CGIAR centres (ICRISAT-lead centre, CIAT, ICARDA and IITA), a CGIAR Challenge Program (Generation), four major national agricultural research systems (EIAR, Ethiopia; EMBRAPA-Brazil, GDAR-Turkey and ICAR-India) and the two USAID-supported legume Cooperative Research Support Programs, all of whom are leaders in grain legume research and development. Other NARS, public and private sector institutes in target and developed countries are also participants of the CRP. Their involvement, and that of local development and community-promoting organisations, is absolutely critical if the Grain Legumes is to be able to realise positive impact for beneficiaries (i.e., rural household producers, and consumers), in developing countries. CRP-funded activities cannot be expected to encompass this scale.

Although represented by a diversity of species, the crops of interest to Grain Legumes are all from the same botanical family, and there is much similarity in their genetic constitution, their adaption to various farming systems and their role in nutrition. Therefore there is argument for synergy between research organisations and their research products in terms of adoption in similar geographical environments globally. We will explore whether such synergy takes place and indeed whether it is necessary.

2.2 Why Grain Legumes and why the species chosen?

Grain legumes are a cost-effective option for improving the diets of low-income consumers who cannot easily afford meat, dairy products and fish. They are also sought by those who chose not to eat meat for ethical or religious reasons. They are a source of dietary protein with a low environmental impact. Grain legumes also generate substantial benefits to the well-being of smallholder farm families. Often a crop cultivated by women, harvests may be consumed at home or sold to generate family income.

In addition, grain legumes provide on-farm agronomic benefits. By complementing cereals, roots and tubers in farming systems of smallholder farmers, legumes can help intensify *and* diversify systems. The Grain Legumes focuses on the poorest sectors of society in order to generate a range of economic, social and environmental benefits. However, the major question as to whether with one hectare for example of grain legumes a family will be able to lift itself out of poverty is a moot point, one that has to

be asked in the context of the whole lifescape within which agricultural interventions take place.

Nevertheless, previous investments in R4D have not satisfactorily addressed four serious production and consumption challenges:

Legume cultivation has shifted to less productive environments, as a consequence of other staple crops receiving favourable policy support, while other inputs and associated yields of legumes have not increased at a similar rate.

Inadequate seed production systems and the lack of access to seed by distant smallholder producers are particular bottlenecks to the adoption of improved varieties.

In some regions the *per capita* demand for legumes is decreasing.

Grain legumes are susceptible to climate change, both drought and heat.

These challenges form much of the substance of the Grain Legumes, with focus on a number of more important grain legume species. They also form the substance of this evaluation, to determine to what extent the Grain Legumes has delivered on these challenges.

2.3 The eight grain legumes in the Grain Legumes program

Despite many grain legume species offering opportunity for intensification and diversification of cropping systems, eight species were chosen out of 14 candidate species considered at a meeting in Dubai in March 2011. This choice followed extensive literature reviews, and considerations of the known and potential contributions of different species to alleviate poverty, hunger and malnutrition using the number of poor living on less than US$2 per day as an index. The latter are presented in Table 1 with respect to the target regions in which Grain Legumes are important commodities.

Table 1. Grain legumes production areas and regional poverty matrix (priority legumes in bold)

Area	Number of Poor (<US$2 per day)				Total Area (M hectares)
	HIGH (>750million)	MEDIUM (250-750 million)	LOW (<250 million)		
	SSEA (1.3 billion)	SSA (539million)	CWANA (64 million)	LAC (55 million)	
HIGH (>0.5M hectares)	Soybean, oil (11.4) **Chickpea (9.0)** **Groundnut (7.9)** Mung bean (5.0) **Pigeonpea (4.2)** **Lentil (1.7)** Pea (0.78)	**Groundnut (10.8)** **Cowpea (10.4)** **Bean, common (5.8)** **Soybean (1.4)** **Faba bean (0.50)** **Pigeonpea (0.50)**	**Chickpea (1.2)** **Lentil (0.6)**	Soybean, oil (4.4) **Bean, common (2.7)**	**Groundnut (19.02)** **Chickpea (10.71)** **Cowpea (10.62)** **Bean, common (8.75)** Mung bean (5.00) **Pigeonpea (4.74)** **Lentil (2.43)** **Soybean (1.58)** Pea (1.47) **Faba bean (1.04)**
LOW (<0.5M hectares)	Cowpea (0.17)	Pea (0.45) Chickpea (0.42) Bambara nut (0.12) Lentil (0.11) Pea (0.04)	Faba bean (0.4) Bean, common (0.25) Soybean (0.18) Groundnut (0.13) Pea (0.13) Cowpea (<0.01)	Groundnut (0.19) Faba bean (0.14) Chickpea (0.09) Pea (0.07) Cowpea (0.04) Pigeonpea (0.04) Lentil (0.02)	

Notes: SSEA: South and Southeast Asia; SSA: Sub-Saharan Africa; CWANA: Central and West Africa and North Africa; LAC: Latin America and the Caribbean; Figures in parentheses for each crop are area of production (in million ha)

Sources: Area of production for three-year average 2007-2009, FAOSTAT; Number of Poor (>$2 per day) – World Bank, http://research.worldbank.org/PovcalNet/index.httm. The table is taken from the Grain Legumes proposal document.

3. Program Design

The CGIAR Research Program on Grain Legumes was envisaged as a collaborative ten-year research program that focuses on improving eight priority grain legumes crops, chickpea, cowpea, common bean, faba bean, groundnut, lentil, pigeonpea and soybean grown by poor smallholder families and it works in four target regions to combat poverty, hunger, malnutrition and environmental degradation. The research program is underpinned through strategic partnerships as indicated above, along with several public and private institutes and organizations, governments, and farmers worldwide.

3.1 Roles and Responsibilities

The Lead Centre (ICRISAT) signed a Program Implementation Agreement (PIA) with the Consortium of Agricultural Research Centres for implementation of the CRP on 1st January 2013, though the start date was 1st July 2012. It was determined that the lead centre, represented by its Director General and Governing Board, would be responsible for the overall performance of the CRP by providing a clear vision, direction, priorities and focus through an inclusive, consultative and transparent partnership process. Participant Program Agreements (PPAs) were signed in January 2013 with all key participants according to Consortium procedures and policies.

The program costs were US$61.631 million for 3 years for Windows 1&2, and $43.962 million secured for W3 and bilateral, with a further $33.542 million, giving a total budget of $139.135 million, as discussed later. The Funding Gap refers to anticipated W3/bilateral funding. It was assumed that, at the time this was written, the distinction between W3 and bilateral funding was not acknowledged.

The Governing Board of ICRISAT has the fiduciary and legal responsibility and accountability for the implementation of the CRP. Through the Director General, it will monitor management and implementation, including the performance of the CRP director, Independent Advisory Committee, Steering Committee and Research Management Committee. The governance and management entities of the other partners will be expected to provide similar oversight of their respective institute's involvement in the CRP. This would include ensuring that their institutional policies, vision and mission are in agreement with the CRP, that the CRP is appropriately reflected in their strategic plans and that their institution assumes fiduciary and legal responsibilities and accountabilities for implementing the agreed research agenda of the CRP.

3.2 Program objectives

The broad objectives addressed by the Grain Legumes are to increase production, sales, consumption and the beneficial contribution of grain legumes to agricultural systems and so to reduce poverty, hunger, malnutrition of smallholder farmers and their households, while improving the health of both the urban and rural population which will increasingly depend on these foods.

The five Intermediate Development Outcomes1 of the Grain Legumes CGIAR Research Program are:

IDO1 Food Security: Improved and stable access to grain legumes by urban and rural poor

IDO2 Income: Increased and more equitable income from grain legumes by low income value chain actors, especially women

IDO3 Nutrition & Health: Increased consumption of healthy grain legumes and products by the poor for a more balanced and nutritious diet, especially among nutritionally vulnerable women and children

IDO4 Productivity: Improved productivity of farming systems, especially among smallholder farmers

1 These were proposed in September 2013

IDO5 Environment: Minimised adverse environmental effects of increased production and intensification of grain legumes

Figure 1 illustrates the relationship between these five CRP Intermediate Development Outcomes and the four CGIAR-wide System Level Outcomes.

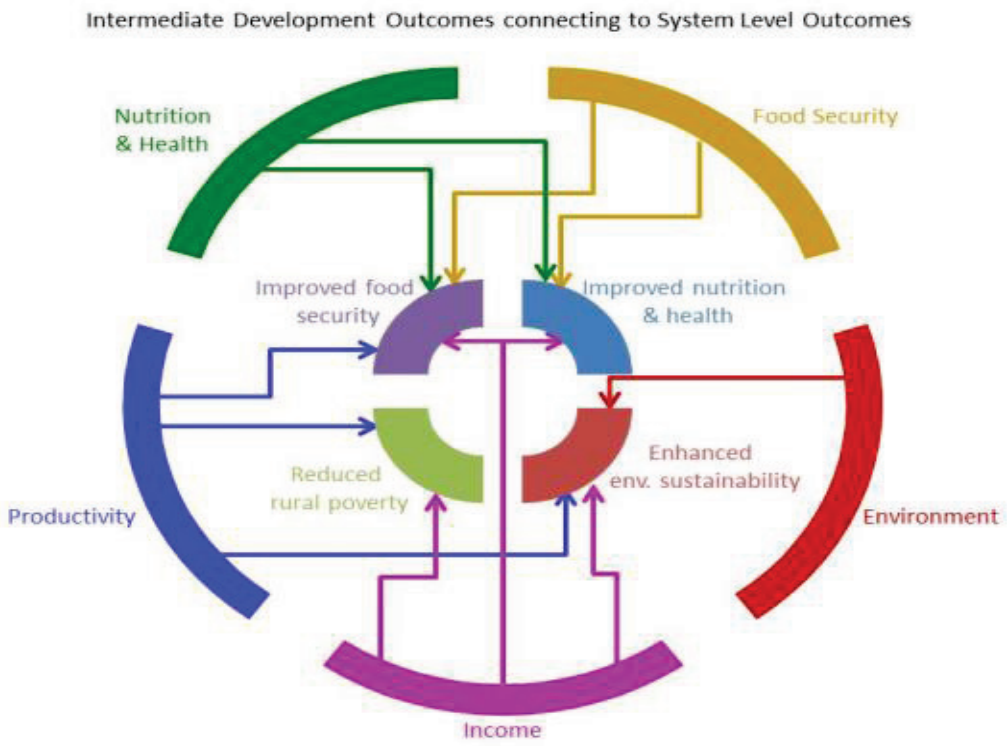


Figure 1. The links between the CG SLOs and the Grain Legumes IDOs.

Source: CRP Grain Legumes Extension Proposal, 2014.

The success of the program is to be characterised in three ways: (i) approximately 20% of crop area as legumes and concomitantly reduced demand for inputs in the target areas for the CRP; (ii) balanced nutrition for consumers from the combination of legumes & cereals, including vegetable legumes; and (iii) that these together will provide stable income to smallholders.

The high nutritional value and low cost of legumes as food makes them especially attractive for low income households. This has tended to stigmatise the consumption of legumes in non-vegetarian cultures, although there is a growing awareness of their dietary and nutritional value among those for whom meat-eating is not seen as a necessary correlate of status.

The original research management structure was based upon 8 Product Lines (PLs - determined at one of a few meetings in Dubai prior to the submission of the accepted proposal), and 5 cross-cutting Strategic Components (SCs). This choice was based on Consortium Board comments on the Grain Legumes VA (Grain Legumes Value Alliance, the title of the proposal that time) in June 2011: only 8 primary legume crops were selected for Grain Legumes. The PLs are ordered around species and output oriented

research objectives, the SCs contribute to advancing Grain Legumes objectives of improving the production, sales, and consumption of grain legumes; both are indicated in Table 2. Targets for SCs within each product line align according to IDOs, which were accepted after the start of the CRP and established in 2013.

Table 2. Product Lines (PLs) and Strategic Components (SCs)

PL1 Drought & low-P tolerant common bean, cowpea & soybean

PL2 Heat tolerant chickpea, common bean, faba bean and lentil

PL3 Short-duration, drought tolerant & aflatoxin-free groundnut

PL4 High nitrogen-fixing chickpea, common bean, faba bean and soybean

PL5 Insect-smart chickpea, cowpea, and pigeonpea production systems

PL6 Extra-early maturing chickpea and lentil varieties

PL7 Herbicide tolerant machine-harvestable chickpea, faba bean and lentil varieties

PL8 Pigeonpea hybrid and management practices

SC 1 Analyzing demand and setting research priorities

Identify priority research and development needs ranging from farmers, seed sellers, processors, and marketers to consumers and policymakers.

SC 2 Developing productive varieties and management practices

Accelerate the development of more productive and nutritious legumes varieties and crop and pest management practices for resilient cropping systems of smallholder farmers.

SC 3 Facilitating legume seed and technology delivery systems

Develop and facilitate efficient legume seed production and technology delivery systems for smallholder farmers.

SC 4 Enhancing post-harvest processing and market opportunities

Enhance grain legumes value additions, and social and environmental benefits captured by the poor worldwide, especially women.

SC 5 Fostering innovation and managing knowledge

Partnerships, capacities, and knowledge sharing to enhance grain legume R4D impacts

This delivery structure, with minor amendments was maintained until the end of 2014 and remains imbedded within the structure developed for the extension phase (2015-2016). Within each PL five Activity Clusters were nominated, within each with activities. A pictorial representation of the links between PLs and SCs is given in Figure 2.

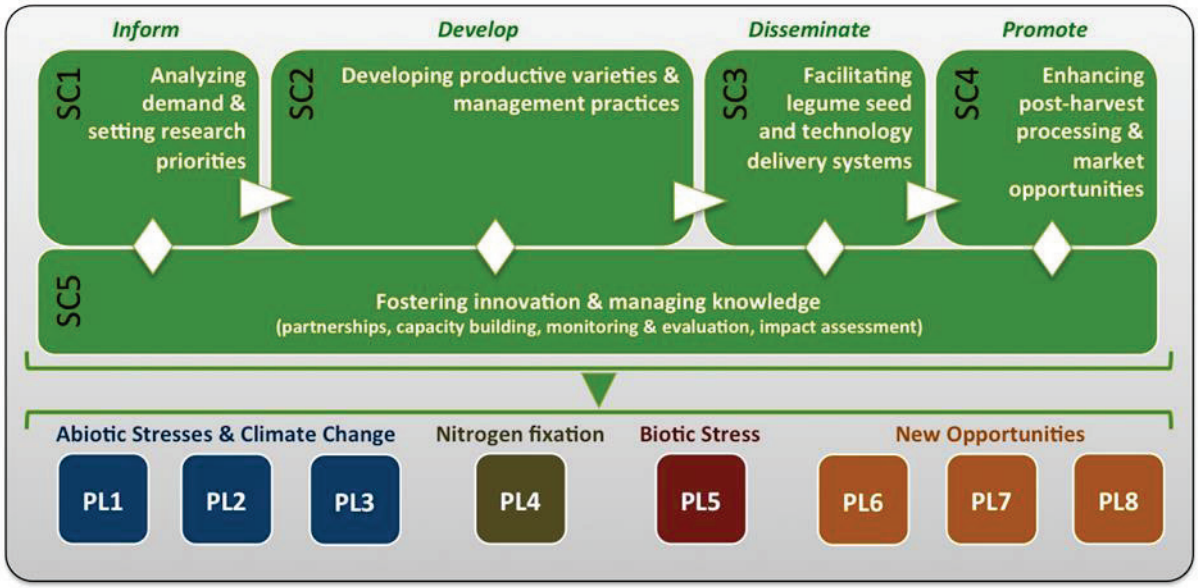


Figure 2. Illustration of links between PLs and SCs.

Source: CRP Grain Legumes Proposal dated 15 Aug 2012.

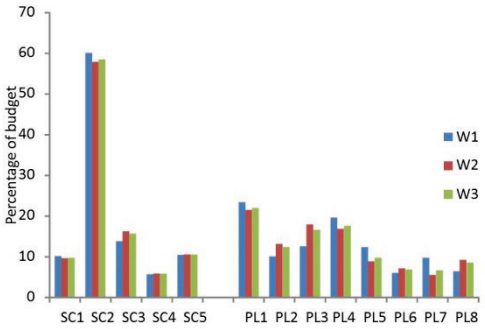


Figure 2b compares the allocation of funds by product line and strategic component.

Source: CRP response to comments on the 2014 POWB.

3.3 Impact pathways

The Generic Impact pathway for Grain Legumes is illustrated in Figure 3, showing the outputs from the PLs in concert with the SCs leading to outcomes and impacts.

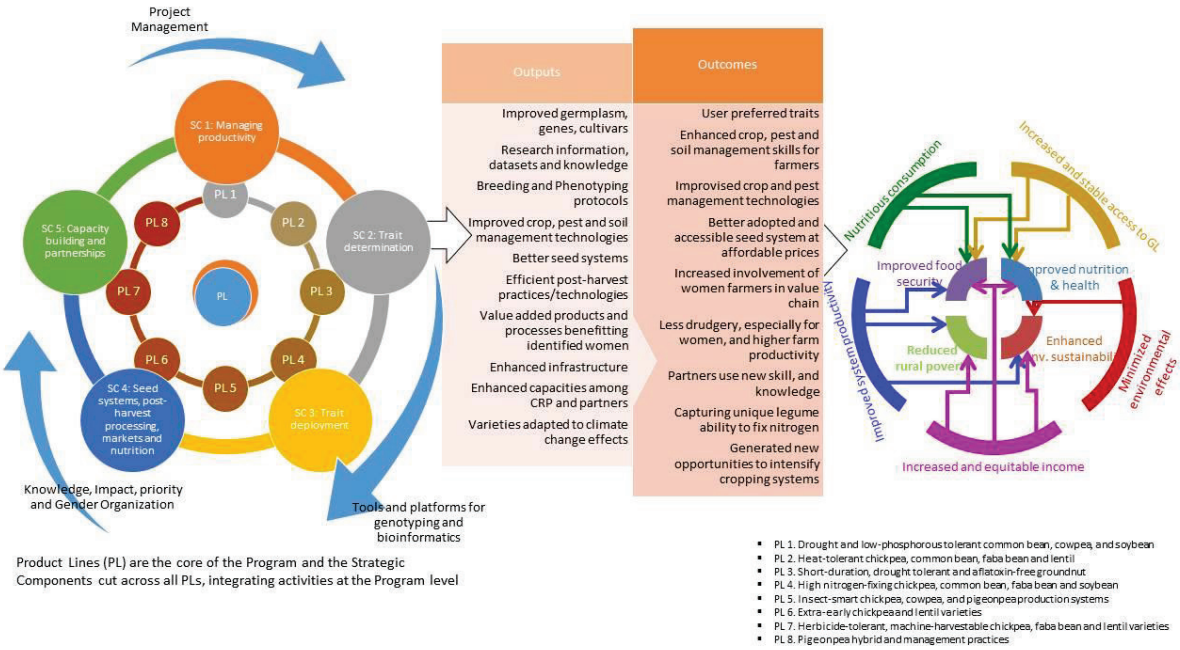


Figure 3. Origin of impacts, derived from investment in PLs.

Source: CRP Grain Legumes Extension Proposal, 2014.

This CRP has adopted a four-pronged theory of change strategy. This is characterised by the assumptions, firstly, and historically, that most of the outputs from the CRP are seed-based technologies have been relatively easy to transfer to and to be adopted by farmers, with many farmers anxious to experiment with new varieties or hybrids. Secondly, that most of these seed-based approaches will also act synergistically with a crop/pest/disease management component, and will also be strengthened by increased market participation that in turn motivates investment in inputs. Thirdly the CRP expects its research outputs to contribute to enhanced outcomes and impacts through engagement with and free flow of information and delivery systems among a cross-section of key stakeholders for the co-development and use of its key knowledge, technologies developed and capacity-building outputs. Fourthly, the CRP uses the 'Inclusive Market Oriented Development' or IMOD (http://exploreit.icrisat.org/page/imod/649/123, http://Grain Legumes.cgiar.org/how-we-do-it/impact-pathways/) as a framework for priority setting and monitoring within the program. This seeks to identify targets for intervention, and to assess the performance of activities with respect to the aim of improving the livelihood of smallholder farmers as well as the urban and rural poor. IMOD highlights value returned to smallholder farmers through agriculture and diversification, for which legumes are well suited given their high market value, their ability to fit into production niches, and their multiplicity of additional uses from leafy vegetables, immature grain, mature grain or fodder. While the technologies developed have in mind resource-poor farmers with small areas of land to cultivate, it is realised that societal changes may have a radical effect on the way that agriculture is conducted over the next 50 years and interventions should also be compatible with extensive agriculture. Nevertheless, the Grain Legumes implements its strategies, for example through learn-by-doing experiences of the Pan-African Bean Research Alliance (PABRA), the Sub-Saharan Africa Challenge Programme

in Eastern Africa, the Tropical Legumes II project, and other outreach mechanisms. Collectively, adherence to these strategies and initiatives is how the CRP partners help the poor reach their destination on the pathway to impact.

This IMOD approach is itself under review in order to identify good metrics with which to assess the priority setting, monitoring and evaluation in Phase 2. However, whatever approach is taken, the crops targeted will remain an essential component of farming systems and the enhanced capacity to tolerate the main identified constraints will remain valid research priorities. Following directives by the CO, voiced through CO and ISPC comments on the 2014 POWB, a new structure was developed, with effect from 2015 using the Flagship Project Approach. (FPs i.e. that relate to the "**o**ne **c**orporate **s**ystem" description of CRPs). Eight FPs were set up, five with their most important outputs in the context of the R4D process leading to IDOs, two as cross-cutting activities (Called FP 6 and 7), and one for Management (FP 8). Nominal relationships between PLs, SCs and FPs are presented in Figure 4.

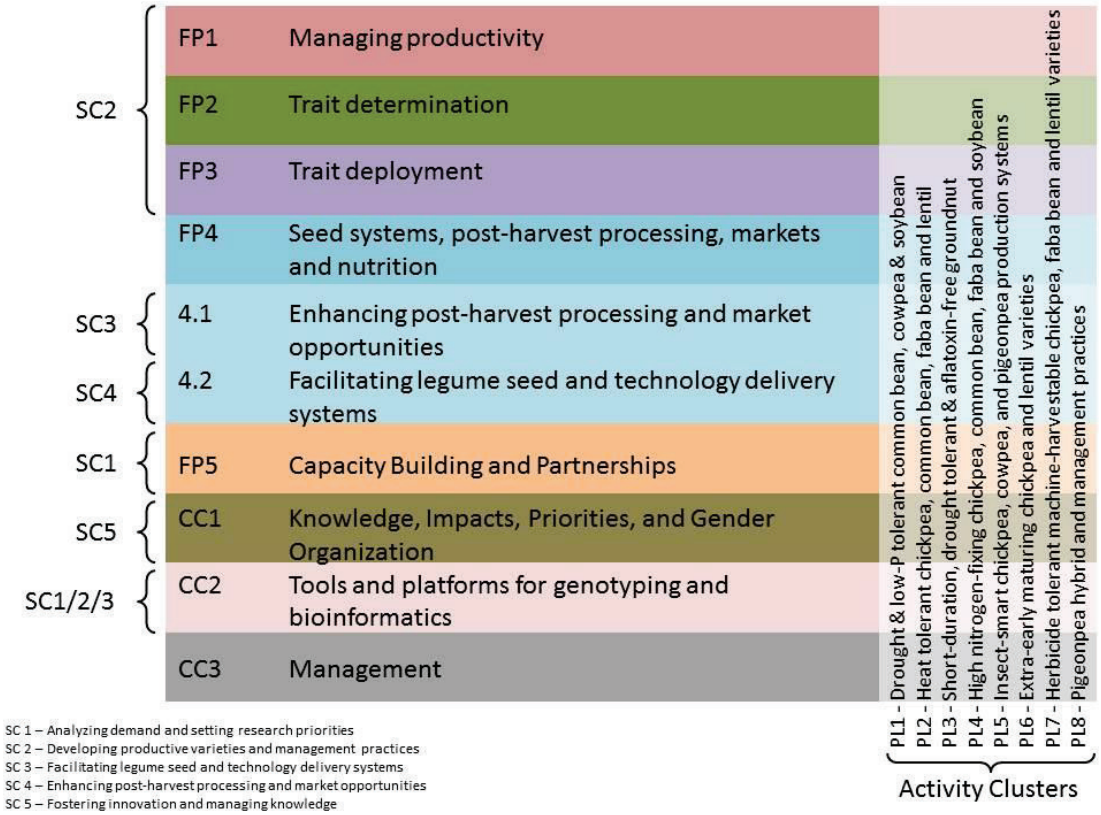


Figure 4. How the former PLs and SCs align with FPs. Note CC 1, C2 and CC3 are later called FP 6, FP 7 and FP 8 in response to the CO/ISPC comments, and note that Activity Clusters are within each PL and FP.

Source: CRP Grain Legumes Extension Proposal, 2014.

This overall reorganisation required some modifications to the descriptors of Output targets. The former SC2 (*Developing productive varieties and management practices*) was divided into 3 more manageable Flagship Projects, since it comprised 60% of the CRP activities/resources/budget.

This realignment of the Grain Legumes according to Flagships rather than Product Lines places the most important outputs of the CRP into the context of the R4D process leading to IDOs, rather than emphasising the specific technical innovations. Product Lines remain intact, and run through the FPs and provide the outcome focus in this process perspective. The Flagship Projects 1 to 5 identify the crop interactions with biotic and abiotic constraints (FP1), the trait discovery and deployment pipeline (FP2 and FP3), the seed systems required for their adoption, and markets that produce income (FP4), and capacity-building and partnerships (FP5). The cross-cutting assessment of impact, the redefining of priorities and assessing gender components of priorities and activities is undertaken in CC1) (FP6). Another new cross-cutting area, CC2 (FP6), intends to develop high throughput genotyping and associated bioinformatics, and CC3 (also called FP 8) includes the Project Management Unit and the various governance and oversight committees.

The concurrence of PLs and SCs with IDOs is presented Figure 5.

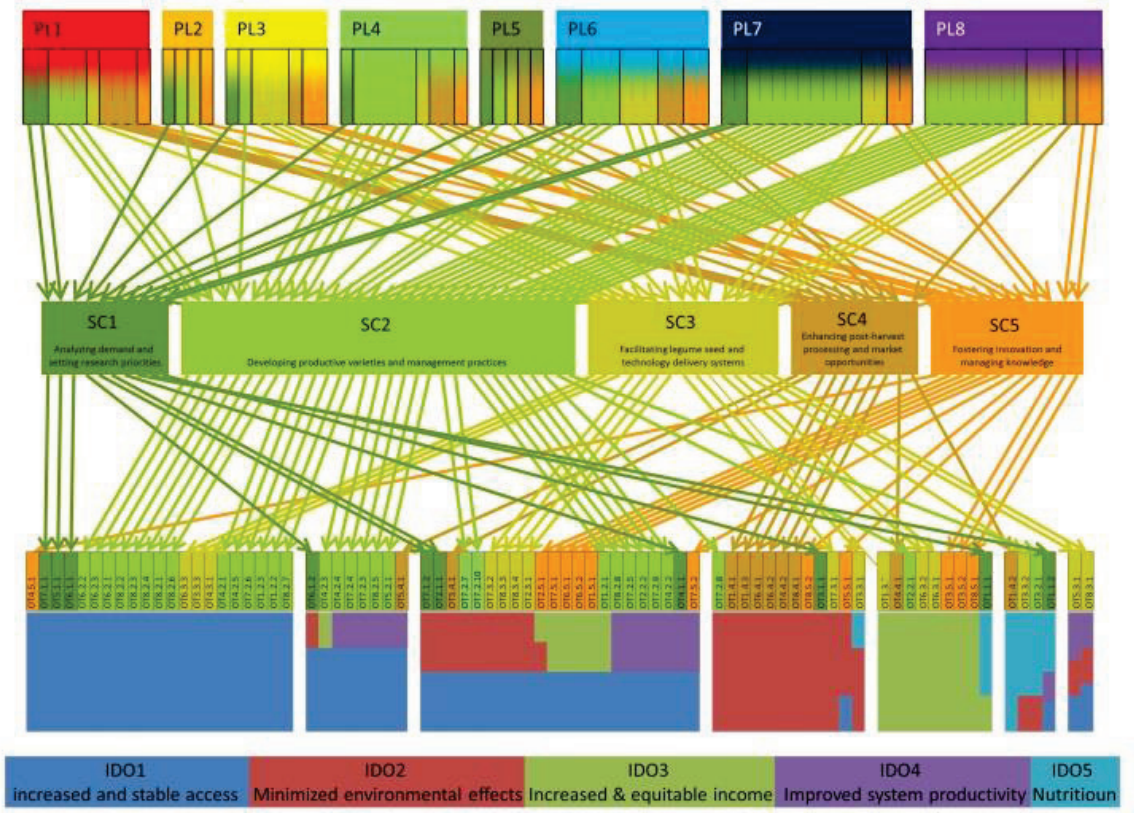


Figure 5. The Output Targets from Product Lines through to Strategic Components.

Source: Response to CRP Grain Legumes POWB 2014.

The Output targets in Figure 5 are organised according to their percentage contribution to each IDO. Each output target is directed to one or more IDO, with a rough estimation of the proportion and these are clustered at the bottom of the figure according to the type of outcome anticipated.

3.4 Framework and management of the CRP Grain Legumes

The framework and management of Grain Legumes is based on the principles outlined in the CGIAR Strategy and Results Framework. In 2013 the structure of Grain Legumes was implemented, with the appointment of the Director, the Research Management Committee and the Independent Advisory Committee. Prior to this, the Steering Committee and Lead Centre Governing Board had exercised oversight through an interim structure. The year saw major upheavals in terms of projected budget as well as the timing and nature of future plans. These were consequently rather more difficult to deal with than it would have been had these structures been long established.

The management structures are set up to provide effective governance and oversight by the Lead Centre, strategic oversight by key partners, research management by key contributing partners and independent evaluation and input by outside experts. With time, these are being refined with evolution of the Grain Legumes.

Integration of the program is a continuing process and the formation of the Research Management Committee with representatives from the four CGIAR Centres and one partner organisation was a major step towards coordinated decision-making that builds on the original planning of the project. The diversity of specific projects (bilaterally and W3 funded) creates a complex structure, but the USAID funded projects, for example, help to sustain linkages between Grain Legumes and partner organisations. The Bill and Melinda Gates funded project Tropical Legumes is a major component of Grain Legumes of comparable scale to the W1W2 funding and with closely aligned objectives, but more restricted in the scope of crops and target areas; N2Africa is a similarly large BMGF project which also serves to connect CRP Grain Legumes with the CRP Humid Tropics.

3.5 Description of CRP Grain Legumes components, structure and committees

The structure of the Grain Legumes is as follows (see Figure 6 for an organogram):

Steering Committee

A committee composed of the Director Generals (or designates) of participating CGIAR Centres, initial key partners and at least one donor representative with duties as defined in the CRP's Proposal.

Independent Advisory Committee

A panel of up to six external experts with duties as defined in the CRP's Proposal.

Research Management Committee

A committee comprised of the CRP Grain Legumes Director, Product Line Coordinators and other members (e.g. the Directors of the two USAID legume Feed the Future Labs (LIL and PMIL)) with duties as defined in the CRP's Proposal.

Program Management Unit

The unit responsible for overseeing the operational management of the CRP, it comprises of personnel based at ICRISAT, Patancheru, India. The unit consists of the Program Director, assisted by other staff members of this CRP with duties as defined in the Grain Legumes Proposal.

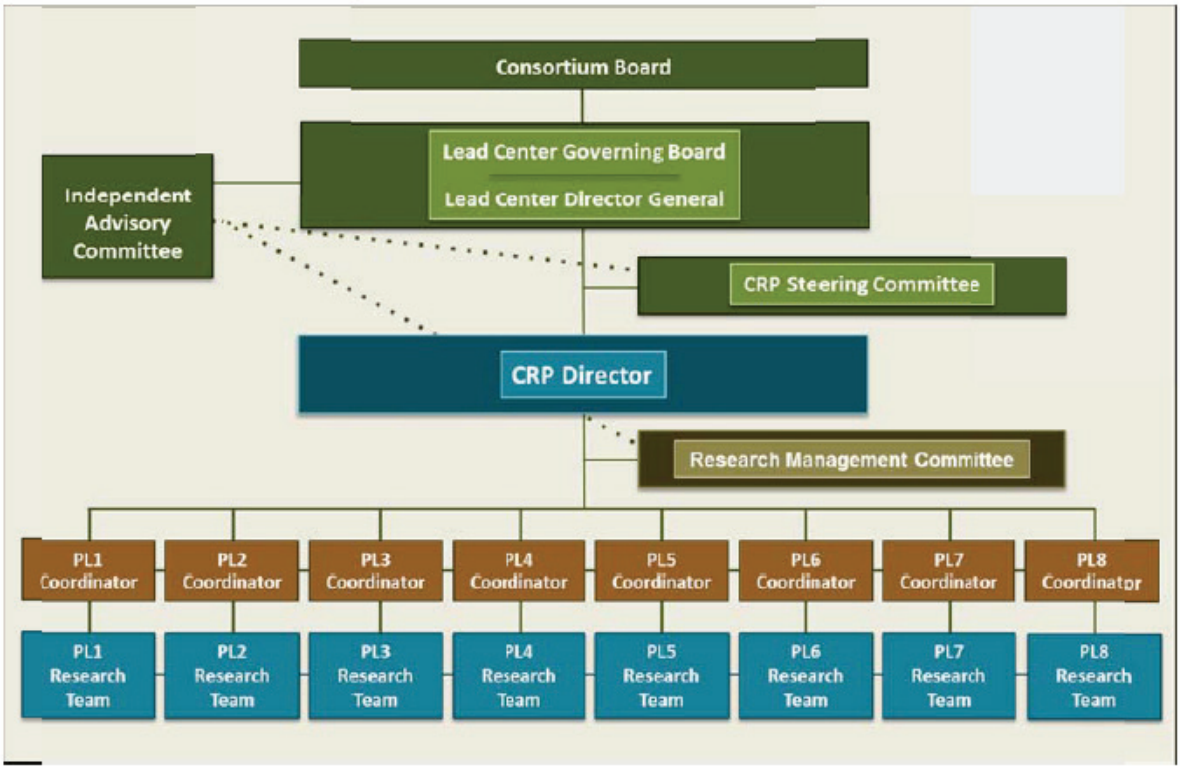


Figure 6. Current structure of the Grain Legumes .

Source: CRP Grain Legumes proposal dated 15 Aug 2012.

Various new mooted committee structures are under discussion, and one is illustrated in Figure 7.

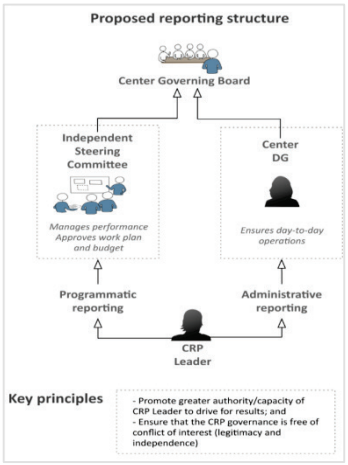


Figure 7. One mooted organogram.

Source: Attachment 3: CRP Governance Agreement CGIAR Research Programs Governance and Management (RPGM) report.

The recent implementation of the FPs has necessitated some change in the RMC, the addition of the FP coordinators (FP 1-5) and coordinators of the cross-cutting themes CC1 and CC2. This expands the membership to include social scientists, and creates a more balanced gender and disciplinary representation.

Thus:

The PLCs may share their roles with second individuals (Product Line Organizer) ideally of different gender (in total 16 individuals).

The Flagship Projects (and Cross-cutting activities) have FP Coordinators who complement the PLCs and have an integrating role across Product Lines. This provides an opportunity for broadening the disciplinary, organisational and regional representation on the RMC (6 individuals).

Invitations will be extended to the other four Legume Innovation Labs to nominate observers to the RMC (6 individuals).

3.6 Monitoring and Evaluation

An important task for the Grain Legumes is that of monitoring and evaluation. This is an ongoing activity, one that provides guidance for evolution of the CRP Research and Development (R&D) and Extension activities and one that can input to any externally requested evaluations.

The Lead Centre and the component PLs must have in place an M&E, as follows: a monitoring system, using as a basis the Consortium level Monitoring Principles approved by the Consortium Board and the reporting system, that provides a reliable, harmonised system to monitor the implementation of this CRP, including the activities of the Program Participants in such implementation, that (i) is reasonably satisfactory to the Consortium and (ii) serves the goals of the CGIAR reforms, including reducing overall reporting obligations of the Centres. The Lead Centre shall have the overall responsibility for monitoring research conducted as part of this CRP and managing the monitoring system.

The Lead Centre shall monitor the overall administrative and financial performance of this CRP.

The Lead Centre and Program Participants will be subjected to an external evaluation in accordance with the CGIAR Policy for Independent External Evaluation; the current CCEE is party to this.

3.7 Grain Legumes Finance: funding and expenditure

The planned funding budget across Centres for Grain Legumes as of the proposal is set out in Table 3, where Year 1 is 2012, year 2 is 2013 and year 3 is 2014. The same total allocation is apportioned to PLs in Table 4 and by PL and SC in Table 5. Tables 6, 7, and 8 indicate the proposed budget according to Partner (and management), gender and CRP Management entity allocations.

Table 3. Grain Legumes Funding Budget (US$ '000s)

Funding Source	Year 1	Year 2	Year 3	Total	
CIAT					
CGIAR Window 1 & 2: Research	3,600	3,780	3,969	**11,349**	**33%**
Bilateral Funding (secured)*	4,663	2,511	2,364	**9,538**	**28%**
Funding Gap	-	5,878	7,661	**13,539**	**39%**
Totals	**8,263**	**12,169**	**13,994**	**34,426**	**100%**
* includes Other Center Income					
ICARDA					
CGIAR Window 1 & 2: Research	3,330	3,496	3,671	**10,497**	**65%**
Bilateral Funding (secured)*	1,081	570	550	**2,201**	**14%**
Funding Gap	1,059	1,112	1,168	**3,339**	**21%**
Totals	**5,470**	**5,178**	**5,389**	**16,037**	**100%**
* includes Other Center Income					
ICRISAT					
CGIAR Window 1 & 2: Research	4,422	4,643	4,875	**13,940**	**28%**
Bilateral Funding (secured)*	8,429	6,920	3,843	**19,192**	**39%**
Funding Gap	-	5,873	10,792	**16,665**	**33%**
Totals	**12,851**	**17,436**	**19,510**	**49,797**	**100%**
* includes Other Center Income					
IITA					
CGIAR Window 1 & 2: Research	6,342	7,051	7,806	**21,199**	**67%**
Bilateral Funding (secured)*	3,433	3,598	3,260	**10,291**	**33%**
Funding Gap	-	-	-	-	-
Totals	**9,775**	**10,649**	**11,066**	**31,490**	**100%**
* includes Other Center Income					
Generation Challenge Program					
CGIAR Window 1 & 2: Research	-	-	-	-	
Bilateral Funding (secured)*	1,020	1,029	691	**2,740**	**100%**
Funding Gap	-	-	-	-	
Totals	**1,020**	**1,029**	**691**	**2,740**	**100%**
* includes Other Center Income					
TOTAL					
CGIAR Window 1 & 2: Research	17,694	18,970	20,321	**56,985**	**41%**
CGIAR Window 1 & 2: CRP Management	1,474	1,547	1,625	**4,646**	**3%**
Total CGIAR Window 1 & 2	**19,168**	**20,517**	**21,946**	**61,631**	**44%**
Bilateral Funding (secured)*	**18,626**	**14,628**	**10,708**	**43,962**	**32%**
Funding Gap	**1,059**	**12,863**	**19,620**	**33,542**	**24%**
Totals	**38,853**	**48,008**	**52,274**	**139,135**	**100%**
* includes Other Center Income					

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

Table 4. Budget by Product Line (US$ '000s)

	Year 1	Year 2	Year 3	Total	
Product Lines					
PL1 Drought & low-P common bean, cowpea & soybean	9,436	12,137	13,105	**34,678**	25%
PL2 Heat tolerant chickpea, faba bean, lentil & common bean	3,984	4,649	5,227	**13,860**	10%
PL3 Short-duration & aflatoxin-free groundnut	4,535	6,084	6,721	**17,340**	12%
PL4 High nitrogen-fixing common bean, chickpea, faba bean & soybean	4,236	5,658	6,388	**16,282**	12%
PL5 Insect-smart cowpea, chickpea & pigeonpea	6,529	7,417	7,762	**21,708**	16%
PL6 Extra-early maturity lentil & chickpea	2,081	2,482	2,679	**7,242**	5%
PL7 Herbicide tolerant chickpea, faba bean & lentil	2,834	3,187	3,448	**9,469**	7%
PL8 Hybrid pigeonpea	2,232	3,029	3,389	**8,650**	6%
Total Product Lines	**35,867**	**44,643**	**48,719**	**129,229**	93%
Gender Research & Analysis	1,512	1,818	1,930	**5,260**	4%
CRP Management	1,474	1,547	1,625	**4,646**	3%
Total Budget	**38,853**	**48,008**	**52,274**	**139,135**	100%

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

Table 5. Total Three-Year CRP Research Budget by Product Line and Strategic Component (US$ '000s).

	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8	Total	
Strategic Components										
SC1 Better targeting of opportunities	2,266	1,597	1,598	1,093	1,819	999	1,413	961	**11,746**	8%
SC2 Cultivars and crop management	21,098	8,656	9,871	7,550	11,816	4,113	5,512	3,844	**72,461**	52%
SC3 Effective seed delivery	5,311	1,542	2,883	2,394	2,495	1,117	1,272	1,922	**18,936**	14%
SC4 Post-harvest value and markets	1,324	636	1,442	2,804	1,976	481	636	961	**10,260**	7%
SC5 Knowledge sharing and training	4,679	1,428	1,546	2,441	3,602	533	636	961	**15,826**	11%
Total Strategic Components	**34,679**	**13,859**	**17,340**	**16,283**	**21,708**	**7,242**	**9,469**	**8,650**	**129,230**	93%
Gender Research & Analysis	1,412	564	706	663	884	295	385	352	**5,260**	4%
CRP Management	1,246	498	623	585	780	260	340	311	**4,645**	3%
Totals	**37,337**	**14,922**	**18,669**	**17,531**	**23,372**	**7,797**	**10,195**	**9,313**	**139,135**	100%
	27%	11%	13%	13%	17%	6%	7%	7%	100%	

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

Table 6. Budget by Partner (US$ '000s)

Partner	Year 1	Year 2	Year 3	Total	
CIAT	6,499	10,229	11,860	**28,588**	**21%**
ICARDA	5,055	4,786	4,980	**14,821**	**11%**
ICRISAT	11,145	15,122	16,920	**43,187**	**31%**
IITA	8,411	9,163	9,522	**27,096**	**19%**
GCP Partners	1,020	1,029	691	**2,740**	**2%**
Center Partners	5,249	6,132	6,676	**18,057**	**13%**
CRP Management	1,474	1,547	1,625	**4,646**	**3%**
Total Budget	**38,853**	**48,008**	**52,274**	**139,135**	**100%**

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

Table 7. Gender Research & Analysis Budget (US$ '000s)

Partner	Year 1	Year 2	Year 3	Total
CIAT	367	460	488	**1,315**
ICARDA	156	164	172	**492**
ICRISAT	449	611	682	**1,742**
IITA	489	532	553	**1,574**
GCP	51	51	35	**137**
Total Gender Research Budget	**1,512**	**1,818**	**1,930**	**5,260**

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

Table 8. CRP Management Budget (US$ '000s)

Category	Year 1	Year 2	Year 3	Total	
CRP Director (salary, travel, operations)	280	294	309	**883**	**19%**
Product Line Coordinators (salaries, travel, operations)	768	806	847	**2,421**	**52%**
Program Management Unit (salaries, operations)	208	218	229	**655**	**14%**
Research Management Committee (travel, operations)	128	134	141	**403**	**9%**
Independent Advisory Committee (honorarium, travel, operations)	90	95	99	**284**	**6%**
Total CRP Management Budget	**1,474**	**1,547**	**1,625**	**4,646**	**100%**

Source: CGIAR Research Program on Grain Legumes, 15 August 2012.

An unusually high W1+W2 budget allocation in 2013 was 'rectified' by a considerable reduction in 2014 and 2015 (Figure 8). This has created difficulties with projections into the future for funding of the CRP.

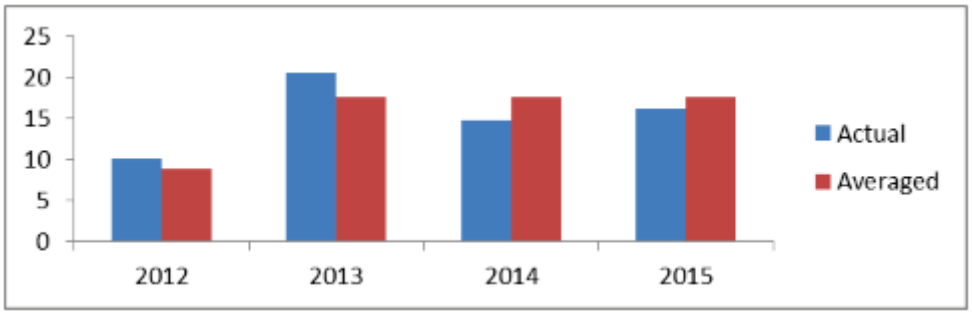


Figure 8. The basis of the 2015 and 2016 budget estimates (W1 and W2)

Source: CGIAR Extension Proposal 2015-16, p14.

For purpose of comparison, the proposed budget for 2015 on a flagship basis is presented in Table 9.

Table 9. Planned key activities for 2015 to produce IDOs and outputs, with associated planning budgets.

FOR REFERENCE ONLY Level as described by OCS	Level of organisation within the CRP	Description of planned key activities at each level of internal organisation	Expected results of planned key activities	Planned budget ($ 000s)
Level 3: Theme, and Level 4: outcomes	**Level n-1: Flagship Project**	*Provide a list of all the Flagship Projects (level n-1) which constitute the full CRP (level n). Indicate, where relevant, the geographical areas where the Flagship is implemented. Number Flagships from 1 to x*	*Expected progress toward the CRP IDOs, and indicators of this progress*	*Budget per Flagship Project W1W2 & W3-bilateral*
Flagship Project 1 Managing productivity		All target areas		7,265
Flagship Project 2 Trait determination		All target areas		2,043
Flagship Project 3 Trait deployment		All target areas		8,925
Flagship Project 4 Seed systems, post-harvest processing, markets and nutrition		All target areas		14,482
Flagship Project 5 Capacity Building and Partnerships		All target areas		3,865
Flagship Project 6 Knowledge, Impacts, Priorities, and Gender Organisation		All target areas		1,857
Flagship Project 7 Tools and platforms for genotyping and bioinformatics		This will have a high degree of focus on chickpea so will be mainly relevant to South Asia and Ethiopia		743
Management				1,044
			Total	40,223

Source: CGIAR Plan of Work and Budget 2015, p5.

3.8 Links with other CRPs

Grain Legumes will complement many other CRPs, the specific linkages envisaged with these CRPs is outlined in Figure 9.

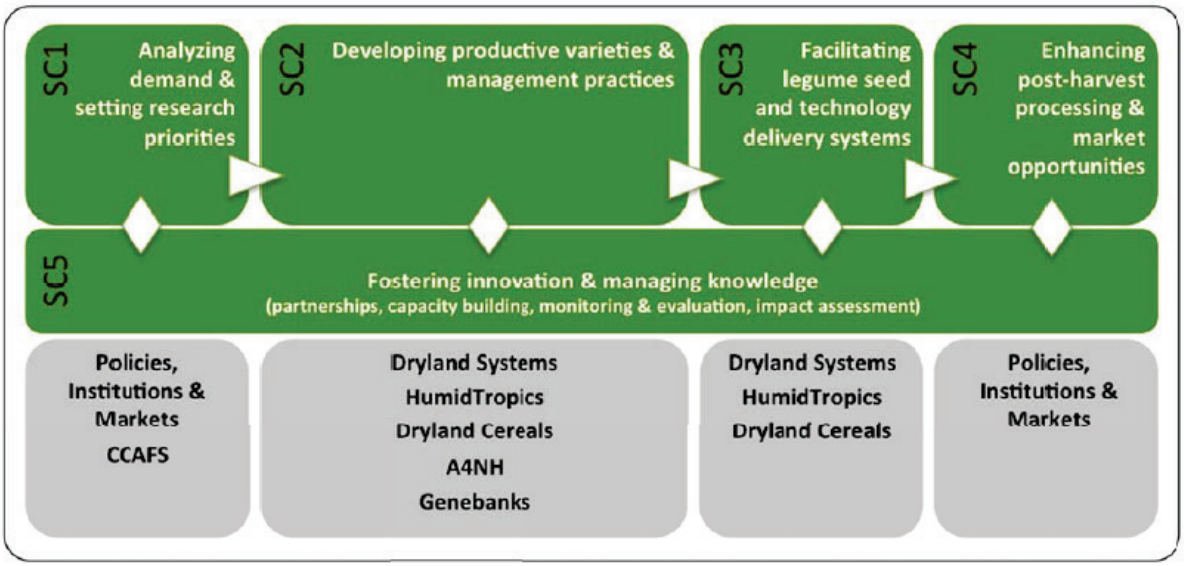


Figure 9. Grain Legumes links with other CGIAR Research Programs

Source: CGIAR Research Program on Grain Legumes 15 August 2012, p. 82.

Geographic focus

The CRP Grain Legumes currently has a wide geographical reach, represented in Figure 10.

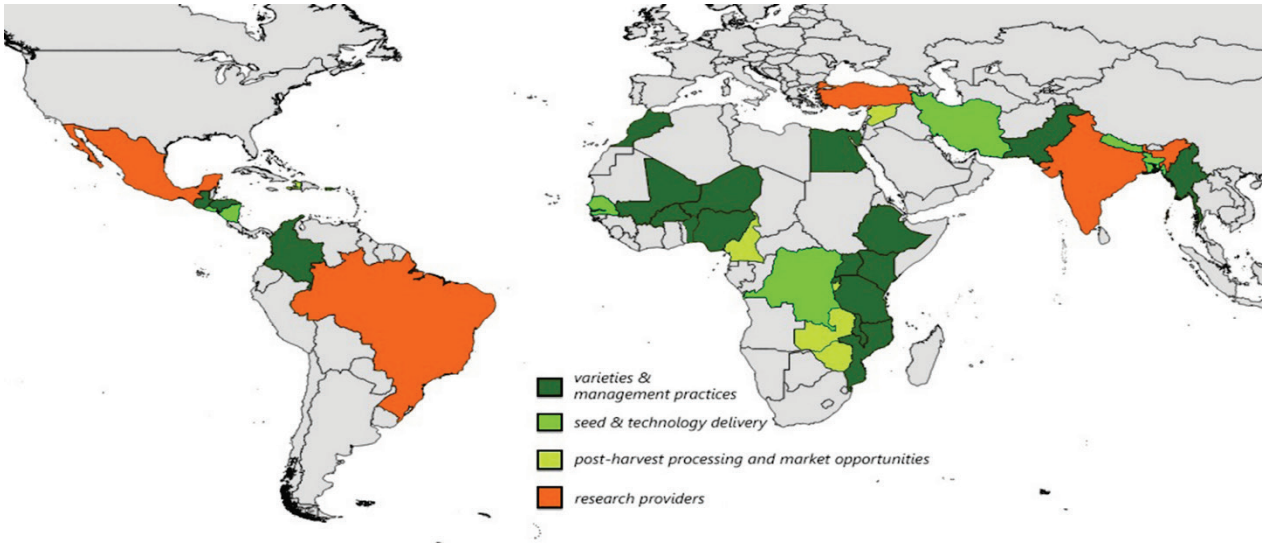


Figure 10. Countries with Grain Legumes interaction.

Source: Presented at CGIAR Research Program on Grain Legumes Consultation Meeting, Addis Ababa, March 2015.

3.9 Establishment and Strategic Partners of the Grain Legumes Program

The CRP on Grain legumes was defined by the description document agreed in August 2012, although it had a formal start date of January 2012. It was built upon earlier CG investment in the Generation Challenge Programme (www.generationcp.org) which included the BMGF funded projects Tropical Legumes I and II. As one of the last CRPs to be formally established (the last was Humidtropics, CRP1.1) this evaluation can of necessity only review R&D outputs achieved over the two years, 2013 and 2014. However, we will review the effectiveness with which this CRP supports earlier CG investment in the R&D in Grain Legumes leading to outcomes and impacts. A summary of the impacts of CGIAR research on grain legumes up until 2011 has been compiled by Pachico (2014).

The partners in this global alliance for grain legumes include four CGIAR Centres (ICRISAT as Lead Centre, CIAT, ICARDA and IITA), and six others who have complementary grain legume research-for-development (R4D) efforts (EIAR, EMBRAPA, GDAR, Generation Challenge Program, ICAR and two USAID-supported legume CRSPs).

The program of work also depends on a network of formal and informal partnerships that are often specific to individuals, institutions or geographies. As mentioned later, this CRP has developed both formal and structured links with other CRPs (notably PIM, CCAFS, A4NH, Dryland Cereals and Dryland Systems). The BMGF projects Tropical

Legumes and N2Africa are strongly aligned with the CRP Grain Legumes, phase III of the Tropical Legumes program has been developed in 2014 (and funded in 2015), that will support scaling out Grain Legumes outcomes and for which the alignment of proposed outputs is currently being developed.

4. Purpose and scope of the evaluation

This evaluation is to provide an independent assessment of the Grain Legumes which will feed into decisions on the next phase of CRPs, to start in 2017. Pre-proposals are due to be submitted by all CRPs in August 2015 (CGIAR Consortium Office, 2014b) – an important consideration in our timing and underlying the urgency in completing this evaluation.

As indicated earlier, evaluation of CRPs is the remit of the IEA, but the evaluation and financing of the Grain Legumes (and four others) has been delegated to the respective lead centres. Advice is forthcoming from the IEA to ensure that this evaluation meets CGIAR evaluation standards of quality and independence (IEA, 2014a).

The preparatory phase for the evaluation started in August 2014. The Oversight Committee for planned CCEE was constituted in August and by Program Management Unit of the Grain Legumes (PMU), which also agreed on the main questions to be addressed. Following consultation with a range of stakeholders and IEA quality assurance, the evaluation questions were refined and incorporated in the Terms of Reference (TOR) for the evaluation, which were finalised and approved by OC in September 2014.

4.1 Justification for the Evaluation:

To evaluate R&D/performance and organisational performance, six criteria are to be considered, these are considered from the point of view of the activity *per se* and the extent to which the Grain Legumes assists in the implementation of the activity:

- Relevance
- Efficiency
- Quality of science
- Effectiveness,
- Impact and
- Sustainability.

And three cross-cutting issues, i.e., added value of the program-integrating activities among participants:

- Gender
- Capacity-building
- Partnerships.

Evidence for the attribution of the projected and achieved outputs, outcomes and impacts generated to the Grain Legumes performance will be evaluated to guide

decision-making internally by the Grain Legumes and externally by donors, CO and others.

The stakeholders of this evaluation are the management of Grain Legumes, all participating Centres, partners associated to the Program, the CGIAR Fund Council and the Consortium Board, donor agencies, users of the outputs of the Grain Legumes and the public in general. Stakeholders will be consulted throughout the evaluation through structured interviews, surveys, site visits, and reference group for some of them.

To provide justification for/against extension/adjustment of the Grain Legumes into the future, with particular reference to Phase II.

The request for a Phase II proposal is being prepared, and timely submission of drafts of the CCEE Final Report will feed into the Phase II request. The current extension phase, for 2015, is about consolidation and focusing of effort.

4. 2 Evaluation framework, criteria, objectives and scope:

The evaluation framework is designed to assess the structure and function of the Grain Legumes and to make recommendations that will enable it to meet the CGIAR development and conservation objectives "…to increase sales, consumption and beneficial contribution of farming systems of grain legumes that reduce poverty, hunger, malnutrition of smallholder farmers and their households, while improving the health of mankind and sustainability of farming systems." The scope of the evaluation will include all participating structures, activities and institutions and will examine projects funded by all funding routes. Given the diversity of Product Lines the parameters below [with the exception of Governance and Management] will be evaluated within a matrix structure, with Product Lines and Strategic Components forming the axes. The review is designed to inform the Extension Proposal bid and we will therefore review the first stage of the program that commenced in 2012. The evaluation will include retrospective analyses of performance against the aims and objectives laid down in the initial CRP proposal and also a forward looking element that will examine the likelihood of success of the second funding phase.

In accordance with the terms of reference for the review, the following areas will be specifically addressed:

1. *Relevance:* Global development, urbanisation and technological innovation are progressing rapidly. Therefore a key question for the reviewers is to establish whether the aims and focus of the Grain Legumes are still fit for purpose and relevant to the global community.

Questions from the Terms of Reference

Coherence

- Is the Grain Legumes strategically coherent and consistent with the main goals and System Level Outcomes presented in the CGIAR's Strategy and Results Framework?
- Rationale for and coherence between program Flagship Projects?

- Use of core-type funding (Windows 1 and 2) for leveraging bilateral funding and alignment of bilateral projects within program strategy.

Comparative advantage

- What is the comparative advantage of Grain Legumes in terms of the CGIAR's mandate of delivering international public goods relative to other international initiatives and research efforts, including the private sector; and partner country research institutions or development agencies .
- In the different areas of research (Flagship Projects, Product Lines/Clusters of Activity) does Grain Legumes play an appropriate role as global leader, facilitator or user of research compared to partners and other research suppliers?

Program design

- Does the program target an appropriate set of Intermediate Development Outcomes (IDOs) and do the activities (in the Grain Legumes Product Lines/Clusters of Activities) cover and/or make reasonable assumptions about the results of other actors' work for achievement of program objectives?
- Do the impact pathways logically link the principal clusters of activities to the IDOs and are the IDO linked to the SLOs through plausible theories that take into account trade-offs between multiple objectives?
- Have constraints to outcomes and impacts been considered in the program design, for example through assessment of the assumptions and risks in reliance on policies, actions of national institutions, capacity and partnerships?
- Have the Grain Legumes research activities been adequately prioritised in line with resource availability and partner needs?

2. *Efficiency:* The review team will use documented evidence plus interviews to examine the structure and effectiveness of leadership across the Grain Legumes. This will include governance structures, financial management and engagement with the Independent Advisory Committee as described in Figure 6. The team will be informed by the sections above on partnering to evaluate the effectiveness of partnership management, of project management across PLs and how IP (Intellectual Property) is managed across multiple partners inside and outside the grain legumes program.

   Questions from the Terms of Reference

- Are the Grain Legumes institutional arrangements and management and governance mechanisms efficient and effective?
- To what extent have the reformed CGIAR organizational structures and processes increased (or decreased) efficiency and successful program implementation?
- Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity?
- Are the facilities and services used efficiently and are there areas where efficiency could be improved, for instance through outsourcing?

- Is the monitoring and evaluation system adequate and efficient for recording and enhancing Grain Legumes processes, progress, and achievements

3. *Quality of science:* The Grain Legumes has access to a wide range of technologies and this section will ask if they are being utilised in a way that will increase our fundamental understanding of the biology that underpins several PLs. We will assess whether data are collected in response to hypothesis driven research and whether they are used in the most effective way to inform and deliver, both independently at the contributing organisation or CRP level.

   Questions from the Terms of Reference

- Does the research design, problem setting and choice of approaches reflect high quality and up to date scientific thinking, state of the art knowledge and innovative in all areas of research?
- Are the internal processes and conditions, including research staff and leadership quality, adequate for assuring science quality?
- Are the research outputs, such as publications and genetic material, of high quality?
- Are negative as well as positive findings documented and disseminated?

4. *Measured program effectiveness:* The evaluation team will assess a sample of individual projects [or Activity Clusters], as guided by the PL leaders, that contribute strategically to the overarching aims and vision for the Grain Legumes. This will be done by comparing each PL to the five strategic components and the frameworks (Figure 4).

5. *Impact:* The review panel will examine the impact pathways that underlie each product line to assess if the route to impact is well defined, measureable and achievable. The impact will be compared to the stated aims of CGIAR and the Grain Legumes.

6. *Likely sustainability*: Sustainability of each product line is closely linked to impact and the review team will assess whether the programme of work completed and proposed will generate a lasting benefit for CGIAR and the communities it serves. It will also look to the sustainability of Grain Legumes activities from the point of view of funding and importance.

   Questions from the Terms of Reference

- To what extent have planned outputs and outcomes been achieved or are likely to be achieved?
- Have there been sufficient efforts to document outcomes and impact from past research with reasonable coverage over research areas?
- What can be concluded from the findings of ex post studies and other evidence, for instance in terms of magnitude of impact in different geographical regions relevant for Grain Legumes and equity of benefits; the sustainability of past benefits and on the extent to which positive outcomes demonstrated at pilot or small-scale level likely to be sustained and out-scalable?

- Have adequate constraint analyses and lessons from ex post studies informed program design for enhancing the likelihood of impact?
- What are the prospects for sustaining financing, for example, for long-term research programs and key partnerships?

7. *Gender*: Gender is a crosscutting area of assessment in the proposed review and is a key area for the Grain Legumes, particularly because legumes are often considered as secondary crops (compared to maize and wheat) which are therefore cultivated primarily by women. Gender barriers, such as access to resources and technologies, were recognised in the CRP program description, and the review will assess to what extent such barriers are overcome by implementation of the research strategy. The review team will expect data or text to be provided that will describe how each product line is able to contribute to the increased income, food security, nutrition, environmental and resource conservation for resource-poor women and men existing in rural livelihoods. The team will investigate to what extent gender balance is achieved in delivering each program, through providing demonstration or test farms, participating in varietal selection and managing production, as set out in the CRP proposal (Table 1).

   Questions from the Terms of Reference

- Has gender been adequately considered in research design in terms of relevance to, and effect on, women?
- Has gender been adequately considered in the impact pathway analysis, in terms of the differential roles of women and men along the impact pathway, generating equitable benefits for both women and men and enhancing the overall likelihood enhancing the livelihoods of women and also the nutritional status of women and children?

Table 10. Grain Legumes gender outputs, outcomes and impacts

Research Outputs	Research Outcomes	Development Outcome	Impact
More and improved germplasm, genes, methods, cultivars	Enhanced knowledge on traits that are important for users, particularly women (e.g. mechanically harvestable legumes, herbicide tolerant varieties to minimize drudgery, etc.)	Women and men farmers access more germplasm with improved agronomic and quality traits of their preference, enhanced resistance and broader genetic base as varieties; legumes cultivation becomes more women friendly with drudgery reduction for women in their tasks	Reduction of poverty through increased income for men and women farmers; asset accumulation, improved health, particularly of women and children through better nutrition
Improved crop, pest and soil management technologies	Crop and pest management technologies used by delivery systems	Adoption of enhanced skills and knowledge of women and men farmers for managing crops, pests and soil –specific to their tasks	Food security increased for both women and men increased production for home consumption.
Better seed systems through decentralised seed system	Better seed systems, including decentralised system, adopted by development partners	Availability, accessibility and affordability of seed to women as well as men farmers. Increased involvement particularly of women farmers in small scale seed business	Reduction of poverty through increased income for women and men farmers through higher incomes
Efficient post-harvest practices/technologies and value added products and processes benefitting identified women	Partners use new skill, and knowledge	Less drudgery, especially for women, and higher farm productivity	Reduced poverty, higher farm incomes and gender equity

8. *Capacity-building:* The evaluation will analyse the way in which the Grain Legumes has identified and met internal and external capacity gaps. The CGIAR Capacity Development Community of Practice has developed a number of tools and frameworks to inform Centers and these will be used, along with other appropriate frameworks, to guide the evaluation. The review will assess the effectiveness of capacity development, considering stakeholders to include internal and Grain Legumes staff, external partners, governments, policy makers and the private sector. The team will assess the extent to which there are methods for implementing capacity-building within each product line, and how well staff at all levels feel they can contribute ideas towards capacity-building.

Questions from the Terms of Reference

Relevance

- To what extent do capacity building efforts address partners' needs?
- Does capacity building target women as well as men adequately and their differential needs taken into account?

Effectiveness and sustainability

- To what extent are capacity issues taken into account in the impact pathway analysis?
- Are capacity building efforts integrated with the research mandate and delivery of the Grain Legumes?

- Are the capacity building efforts and incentives among partners adequate for enhancing the long-term sustainability of program effects?
- Are there demonstrable outputs and outcomes of capacity building?

9. *Partnerships, inclusivity or exclusivity, synergy in relationships:* The review team is aware of how significant and important external partnering with organisations, projects and individuals can be to the success of a research programme. The team will examine to what extent there is effective involvement of partners in research and activity programming, what the criteria are for developing partnerships, how they are contracted and how communication between partners and within the CRP are managed.

10. *Governance and management including financial leadership*: The review team will use documented evidence plus interviews to examine the structure and effectiveness of leadership across the Grain Legumes. This will include governance structures, financial management and engagement with the Independent Advisory Committee as described in Figure 6. The team will be informed by the sections above on partnering to evaluate the effectiveness of partnership management, of project management across PLs and how IP is managed across multiple partners inside and outside the grain legumes program. We will also evaluate, through other cross-cutting areas, one relating to communication and the other impact of earlier (pre-CRP) research and development. Lines of communication that work effectively are essential at many different levels. The review will examine the formal reporting framework and whether it is successful in a practical sense between scientists, managers and advisory partners within a product line, between product lines and between the Grain Legumes and other CGIAR programs. The team will also examine how effective the grain legume program is at communicating its findings with the outside world through peer-reviewed publications, trade and grey literature and other forms of media that engage the stakeholder community.

In addition, we will assess the integration of ongoing activities as of CRP commencement in mid-2012; looking at the impact from earlier commenced activities, continued during the Grain Legumes.

5. Methodology, data collection and analysis

5.1 Methodology

The approach to take is, to some extent, guided by the TOR for the CCEE of the Grain Legumes, which states:

“The CCEE is expected to serve the twin goals of:

Meeting funders’ needs for accountability and ensuring that the Grain Legumes is fit for purpose before further funding is provided and

Learning and continuous improvement for the Grain Legumes, especially with regard to research lines, partnerships, governance and management, skills, and resource requirements. It also allows for the engagement of key partners in a dialogue to increase ownership and common understanding of how goals are to be achieved."

It also is expected to "...provide useful evaluative information to Grain Legumes stakeholders to inform the development of their full proposals for the new Grain Legumes funding cycle".

In essence, therefore, the Evaluation is pluralistic in its direction. The evaluation is not only summative in measuring results from the Grain Legumes at an arm's length; it is also formative in promoting learning and improvements, and developmental in nurturing adaption to transformational change with time. Formative evaluations, if undertaken effectively, should include a degree of participation of the evaluated person[s], and in this respect the evaluation process is often more important than the final report. In our instance, with the time and other constraints we cannot be purposefully participatory, other than ensuring that our review instruments include participatory input, and that meetings bring together as many actors undertaking Grain Legumes activities as is logistically possible. We do intend to report on options for continuous learning within the Grain Legumes, but will not directly undertake developmental (i.e., change-focused) evaluations. Our evaluation is therefore more summative with findings-based reasoning than judgemental in nature, informing the major decisions as to whether or not to continue with the Grain Legumes , and if so, in what structure.

Our first task will be to review the Logical Framework that underpins the desired Goals, or Impacts of the Grain Legumes. We will also analyse the broad role of the outcomes, outputs and inputs that relate to the overall Grain Legumes and how they relate to the organisational units of the Grain Legumes. The logical framework approach to planning and management of Grain Legumes activities implies a linear process, leading from activities, outputs, outcomes, to impacts, but we believe that within such an approach there should be room for a more systems dynamics approach allowing for feed-back at every step and within every step, in order to refine and improve upon the respective activities as new results, ideas, and directions come to light.

Using the methods for collection of data indicated below, and based upon their analyses, we will set up a matrix that will explore the following evaluation criteria:

Relevance: The review will focus on the relevance of the overall objective and choice of research approaches to achieve them, the composition of the partners, the institutes and countries involved, the distribution of responsibilities, allocation of projects and underlying arguments for the same and the openness of ensuring that the best partners are engaged in the research.

Efficiency: Herein, we will concentrate on the management and structure of the CRP and its FPs, the accountability to the funding sources, the ability to react to external stimuli (we will review the change from the 5 SC/8PL to 8 FP) and the capacity to capitalise upon relevant research undertaken by non-Grain Legumes

agencies/institutes. Documentation on governance and management committees provided by the Grain Legumes , accessed from the CGIAR Governance and Management review, and information acquired from the Grain Legumes proposal, commentaries from the ISPC and FC, analysis of the terms of reference of the CRP governance and management bodies; review and analysis of the minutes of participating Centre Boards, and the CRP governance and management committees, semi-structured interviews, online surveys and individuals will comprise the main content for this evaluation. Issues of IP and risk will also be assessed herein.

Quality of science: Using peer-accepted measures of quality we will benchmark against other CRPs [those with evaluations completed], and identify areas that can be used as flagships and others that require support and quality control. Within this category we will look at the processes in place for ensuring quality of science, the input and output quality, and staff perceptions of quality. This assessment will also refer to a recent study conducted by Elsevier on Centre publications output. When assessing quality of science, considerations of access to resources, to peer and supervisory support and oversight [and accountability or lack thereof], to issues with publishing in interdisciplinary areas. Team members will be assigned a sample of publications for in-depth assessment, according for example to quality of journal, proportional contributions of Grain Legumes and non-Grain Legumes authors, and proximities of relevance to the objectives for the Grain Legumes. Cross-checking of criteria to promote replicability between members will be used.

Effectiveness: Herein, we will review the academic quality of outputs to date, not only those with recognised metrics, but others that encompass the extent of knowledge generation that will contribute to the overall goals of the Grain Legumes. The important role of interdisciplinary research is that it is necessary to support a system-based outcome orientation. Our focus will include review of effectiveness of such research. We will also consider the productivity (quantity of outputs) in view of investment by the Grain Legumes and the outputs/outcomes, whether anticipated goals have been achieved, and their likelihood of success in adoption and of leading to measurable impact. One suggested output is that a minimum of one publication per major piece of research work be in an open access form to allow the research results to be a global public good.

Impact: Impact will be defined as results that have gone beyond simple delivery of outputs, and encompass both outcomes and impact proper. Given the long lag time for impacts from most agricultural research, we recognise that impacts are unlikely to have accrued from current investment, but lessons learned from impact of earlier funded relevant research will guide investment for the future. Given the short time since the establishment of the Grain Legumes, impact *per se* is unlikely to be large, so we will also include in this section our *ex ante* estimates of likely impact. The relevance of the CRP theories of change and their underpinning of impact proper will be assessed.

Sustainability: The evaluation will review approaches and evidence for longer term arrangements to sustain financially and intellectually the partnerships initiated through Grain Legumes.

We will also evaluate the cross-cutting issues gender, capacity-building and partnerships.

Relevance, effectiveness and quality of science will be evaluated on a PL basis, the other criteria in an inclusive manner across the Grain Legumes. In addition, we will use three other parameters: Economic, Socio-Cultural (benefits to producer, consumer, public as a whole in the north and south) and Environmental (environmental impact assessments) in a simple *ex post* analysis. For anticipated benefits into the future we will undertake a simple *ex ante* analysis, which will require some weighting/prioritising, an exercise that we will look to the Grain Legumes for input. Depending upon the time available, we may enter into some simple cost/benefit simulations or other mathematical approaches to quantify potential impact. Within the impact we will include a review of the sustainability of outcomes from the project activities, and the cross-cutting issues of gender, capacity-building and partnerships.

For each of the cells in the PL * Evaluation Criteria matrix, we will score on a five-point scale along the lines of: Excellent, Very Good, Good, Satisfactory or Unsatisfactory. Each cell will have a one page summary of our findings that lead to the allocated score, as will each of the remaining six criteria. To help us populating the matrix, we will evaluate in depth a small number [most likely 8] of Grain Legumes projects and a larger number of activities [the intent is 15-20] at arm's length. The numbers will depend upon our reading of Grain Legumes activities, and what might be representative samples. Choice of projects will employ restricted randomisation, invitation to the Grain Legumes to nominate those already considered successful, those closely linked to team members' specific disciplines, those representing simple Centre and cross-Centre involvement, and others at random. Our prime aim is to interrogate the evidence base to determine whether objectives such as poverty reduction (especially for women), increased food security, improved nutrition and health, and enhanced management of natural resources, are being achieved by investment into the Grain Legumes.

5.2 Data collection

Document review

The written word is the main form of recording the undertakings of the CRP. We will, as a team, endeavour to review all relevant documents [not necessarily in detail, but the existence and availability of all]:

> The final accepted proposal for the Grain Legumes, and earlier input from the CO and ISPC.
>
> Reported ongoing activities of the Grain Legumes [Annual Reports, mid-year reports, POWB, response to comments from CO, ISPC, Newsletter, and so on], especially related to documentation of adoption and diffusion of Grain Legumes and earlier CGIAR legume technologies.
>
> Governance and management processes (TOR and minutes of meetings of Steering Committee, Research Management Committee, External Advisory

Committee, relevant Centre Board Meetings where the Grain Legumes is discussed).

Any external programme and management reviews of CG Centres, programme management.

Formal academic outputs in the forms of journal and proceedings publications, to patents, records of and actually implemented policies.

Publicity of the Grain Legumes in the press.

Document adoption and diffusion of CGIAR legume technologies.

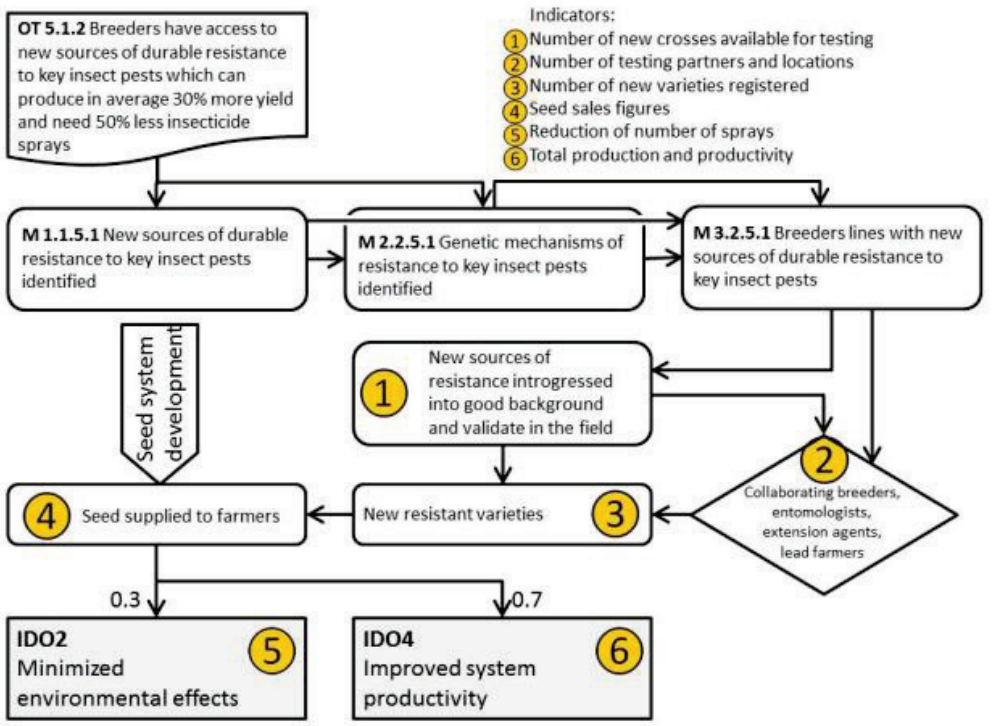
Project activities mapped to Grain Legumes

We wish to understand the allocation of financial and other resources to the activities undertaken within the Grain Legumes, their geographic distribution and concentration or otherwise of linkages with external partners. This information will allow for a descriptive analysis upon which we can determine which CRP activities we will review in detail, ensuring a representative sampling of the whole.

Ideally the outlines of each activity as illustrated by the following examples, taken from the Extension Proposal, but initially mentioned in the original proposal will be forthcoming from each of the Product Line Coordinators:

To these will be mapped the funding allocated and spent, with special reference to the funding if from project-specific bilateral grants (W3/Bilateral).

Should the activity outlines not be available, as would appear to be so, then the Plan of Work and Budget for 2012/2013/2014/2015 will be reviewed for this information.



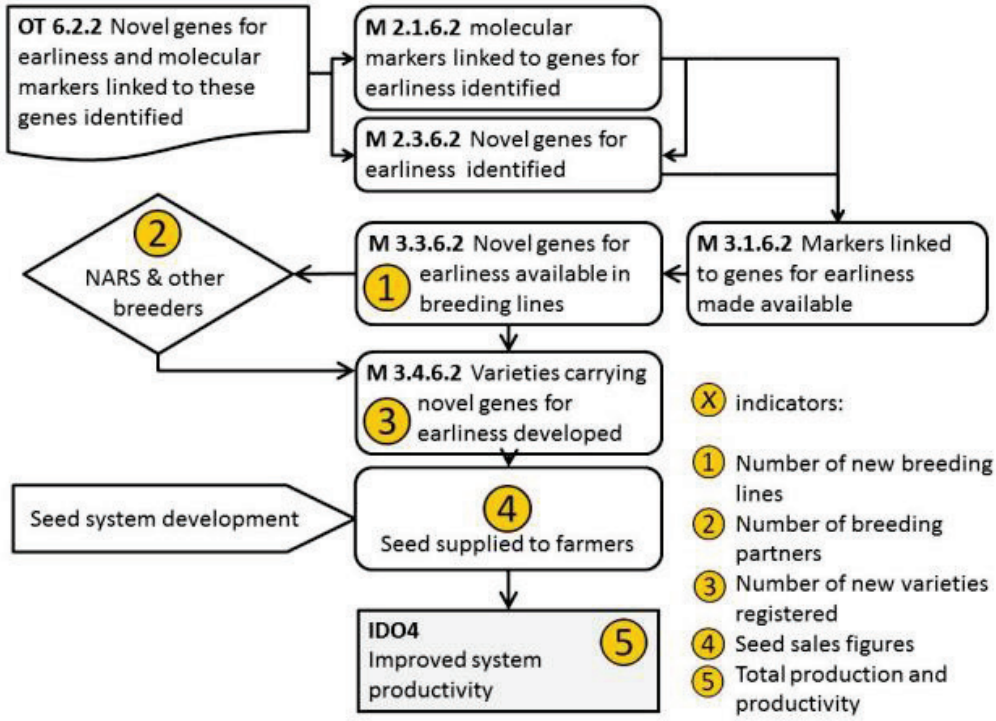


Figure 11: Analysis of sampled projects

Source: Dr. Noel Ellis, self-communication

A random sample (c. 15-20) of activities of the total 40+ projects that we are aware of will be reviewed through document analysis to determine from a broad brush approach

the reasoning behind and effectiveness of the project design and links to the overall and specific goals of the Grain Legumes , relevance and interconnectedness of the activities between and within projects, the likely impact pathways and their mapping, and linkage with cross-cutting topics such as gender, capacity-building and priority setting.

In-depth case studies

Six to eight in-depth case studies will be undertaken (following mutual agreement between the CCEE and the Product Line Coordinators, and the PMU). Case studies will be selected for a variety of reasons: for example because they represent different levels and sources of investment and size [large and small], with varying proximities to creating impact, according to spread across single and multiple centre activity, with various formats for partnerships, and language [French and English], and whether they were operating as pre vs post Grain Legumes activities, i.e. they have legacies or not. The case study approach has been acknowledged as being "useful for testing whether scientific theories and models actually work in the real world" (Shuttleworth, 2008). The case studies will also incorporate a broad range of issues raised by persons consulted during the preparation of this Inception Report, through reading of minutes from the various CRP Committee meetings, and issues deemed of importance by the authors of this report. For example, we will review how activities differ from and add value to earlier ones, what linkages work within a systems perspective for research and development direction, how well W3/bilateral projects (e.g. N2Africa and Tropical Legumes) are integrated into the CRP, how higher productivity will lead to higher incomes through production of Grain Legumes s, how enhancing N2 fixation links with all projects, how breeding advances capitalise upon molecular technologies and mutant populations, how large datasets and their quality control are managed, how top-down demands on time through all levels interfere with the science and development goals of the CRP, and how effective communication has been to sensitise the broader stakeholder audience in appreciating the outcomes of the Grain Legumes .

Case studies, using a common template, will also where relevant and possible rather more formally assess:

- project design according to issues to be studied and likely achievement of goals,
- risk management,
- partner choices,
- integration of end users into project design,
- gender integration and disaggregation of target groups by gender, other criteria,
- theory of change and impact pathways envisaged,
- responsibilities of individuals, institutions and accountability,
- monitoring and evaluation, planned and carried out,
- verified actual outputs, outcomes and tracking towards impacts,
- attribution of outputs/outcomes/impacts disaggregated according to technology development, training, extension, partner and other inputs during the life of the Grain Legumes ,

- communication undertakings and accomplishments,
- impact and flexibility to adjust activities during the project,
- adequacy of funding and relative apportioning of funds between CG and non-CG activities,
- links to other parts of the Grain Legumes ,
- links to funding sources,
- magnitude of outside leverage, relevance and synergies,
- strategies for termination (successful or otherwise).

Within each PL we will additionally concentrate on activities, for example:

PL1 - Drought & low-P tolerant common bean, cowpea & soybean: Uptake pathways via research outputs by PABRA, especially to be reviewed in the Kenya visit.

PL2 - Heat tolerant chickpea, common bean, faba bean and lentil: Role of field trials and incorporation of genotypic variation into breeding programs.

PL3 - Short-duration, drought tolerant & aflatoxin-free groundnut: Dissemination of aflatoxin control and monitoring protocols and their adoption.

PL4 - High nitrogen-fixing chickpea, common bean, faba bean and soybean: Focussing on the integration of activities with partner organisations.

PL5 - Insect-smart chickpea, cowpea, and pigeonpea production systems: Comparative approaches to *Maruca* control.

PL6 - Extra-early maturing chickpea and lentil varieties: How is this variation being incorporated into breeding lines and what is known about the genetic control of these traits?

PL7 - Herbicide tolerant machine-harvestable chickpea, faba bean and lentil varieties: Focus on the disparate reasons – general weed control: What methods are being used to generate herbicide tolerance, and how does the approach relate to the development of herbicide resistance in weeds. For parasitic weed control how does the yield loss associated with *Orobanche* (for example) control agents affect farmers' decisions to grow legumes, even if the control is effective against the parasite?

PL8 - Pigeonpea hybrid and management practices: How is the hybrid production scaled-out? How does this focus affect the future development and relevance of open pollinated varieties?

Country and other visits

The choice of the following countries is inescapably linked to the choice of the in-depth case studies:

Malawi, Benin, Morocco, Ethiopia, Kenya, Rwanda, India.

We will also visit as appropriate and if possible the following:

To CO/ISPC/IAE

To Centre Board or other Meetings

Nominally we suggest visiting ICRISAT in mid-June], after getting a good idea of non-lead centre activities.

Semi-structured interviews

For the summative evaluation we will interview, in a semi-structured manner either through virtual face to face or survey means, a representative selection of donors, partners, peers and external stakeholders and other individuals knowledgeable of the CGIAR, Grain Legumes and global Grain Legumes research in the agricultural development context. In addition to use of our personal contacts, we will look to the Grain Legumes for nomination of suitable persons, albeit having been advised that the Grain Legumes will withhold actual contact details due to issue of confidentiality. Such a list will be expanded as we come across new relevant contactable persons/institutes. Many of these interviews will be done during country/institute visits, but we will also, as a team, try to interview 10 additional persons per team member by telephone/Skype. We will prepare the interview format, to ensure all that are interviewed have the opportunity to answer questions not only on their relevant engagement and activity with the Grain Legumes (broadly speaking, priority setting, technology generation, but also knowledge generation and its location in the complex system) and leverage of additional resources on the strength of Grain Legumes involvement, but also on the efficacy of integration of gender, capacity-building and other cross-cutting issues such as with capacity-building and partnerships and associated benefits and issues, of dissemination pathways of outputs from their research, their linkages/networks within Grain Legumes and non-Grain Legumes activities, and linkages with SMEs, NGOs and with influence of policy, and so on. We will also pose a few questions that open up a SWOT type of analysis, with emphasis on the benefits or otherwise of the CRP mode of research compared to the earlier Centre focus.

Some of these questions are outlined in Appendix 2. The survey will include a common general section and further sections according to the category of interviewee.

We will also interview those with no contact with the CRP, to get an independent insight into the effectiveness of activities of R&D in the Grain Legumes.

For the formative evaluation we will undertake group self and peer evaluations, with the involvement of Grain Legumes staff and stakeholders, to determine the degree of integration, feed-back, and way forward present within the CRP activities.

As with the online researcher survey below, we have obtained University of Reading Ethical Clearance. Personal responses to the interviews and within online surveys will be kept strictly confidential.

Grain Legumes on-line researcher survey

Using Survey Monkey or similar, we will capture researcher insights into the management of the Grain Legumes, its relevance, impact, quality of science, synergies created [or barriers created with cross–centre management], and the like, giving invitees two weeks to complete the survey which will be administered around the middle of the Review Period [early May to end July] to allow for informed choice of questions. A broad outline of some of the questions that will be included is presented in Appendix 2.

5.3 Data Analysis

The analysis will follow that proposed in other Inception Reports (e.g., Beversdorf et al., 2014), using factual and evaluative assessments. Responses to the surveys and quantitative/qualitative data collected during the group assessments will be subjected to evaluation [a numerical score and supporting arguments] according to the following criteria, defined above: Effectiveness, Efficiency, Relevance, Impact and Sustainability, Governance and Management, and where relevant Quality of Science. Opportunity for subjective (evaluative) answers is made within the surveys, and these narratives will be collated and summarised. Qualitative data will be coded where possible and in order to represent overriding viewpoints frequencies will be presented. The survey data will be grouped according to CG Institute, to Product Line and where possible triangulated with other sources of data such as the in-depth case studies and published reports.

Within the report we will question the implementation status of each activity, whether the assumptions made in developing the Grain Legumes are fulfilled and if not whether that limits success and outcomes, and the trajectory for future outcomes and impacts based on the Grain Legumes theory of change, and the need or otherwise to continue funding this research. The links between the various activities in the Grain Legumes and the Grain Legumes theories of changes will be explored.

Team members have been assigned responsibility for each of the Product Lines, each assisted by the Research Associate and these are indicated in the Table in Appendix 3, together with Team Members backgrounds. Case studies within each PL will be written up according to the criteria outlined in the section on data collection, in a form that allows for cross-case analysis, searching for both objective and serendipitous outcomes.

Disaggregation of the analyses by gender, governance and management, capacity-building, partnerships and human resources will be undertaken.

The Governance and management analysis will draw from survey data and existing documents on structures in place, again with triangulation of information between sources, to address the issues under review (Section 1 of the Evaluation Matrix, Appendix 1).

6. The Evaluation

6.1 Timing

The review team will commence activity from the beginning of May (Table 11) and essential interviews and data analyses will be completed by the end of July, in time to report to ICRISAT Board and for recommendations to be incorporated into the Phase II proposal.

Table 11. General timelines for the CCEE

Proposed timeline for CCEE Phase	Period	Main Outputs	Responsibility
Inception Phase	April 2015	Inception Report	CCEE Team
Inquiry Phase	May – July 2015 July 2-22 2015	Various reports and analysis products as defined in inception report On-line survey	CCEE Team
Reporting Phase			
Drafting of Report	Late-July 2015	Draft CCEE Report	CCEE Team
Presentation of Preliminary findings	Early-August 2015	Presentation of preliminary findings Feedback from main stakeholders	CCEE Team
Final CCEE Report	September 2015	Final CCEE Report	CCEE Team

Travel and field visits will be as follows:

May 11-15: Morocco	Dunwell, Midmore
May 27-June 1: Benin	Dunwell, Midmore, Smith
June: ISPC France	Dunwell
June 13-20: India	Dunwell, Midmore, Smith
June 29-July 9: Kenya, Ethiopia, Malawi, Rwanda.	Dunwell, Midmore, Smith
August 17-21: India	Dunwell, Smith, Wagstaff

6.2 Quality assurance

Our team (Appendix 3) comprises Professor Jim Dunwell, geneticist and expert in applications of molecular biology in sustainable intensification of agriculture; Professor David Midmore with experience in CG research and management and an expert on productions systems, agronomy and resource use efficiencies; Associate Professor Carol Wagstaff, phytochemist and expert in improving the nutritional quality of crop plants by way of molecular and management interventions. Dr Shirley Smith, post-doctoral fellow with an agricultural background and experience in the social sciences and setting up and analysis of on-line surveys. The team will be guided by the CGIAR Standards for Independent External Evaluation (Published January 2015) and the report will be submitted to the IEA for their review.

6.3 Limitations

This inception report was drafted over a very short time (three weeks) since the start of the review; as such we have had only a brief period for our initial evaluation, given the size, complexity and numbers of crops in the CRP which all mitigate against a clear cut outcome from the evaluation. A major limitation is that the evaluation is based upon impact on the ground, but the CRP appears to have very little influence at the level of farmers, and growers, and the outcomes in terms of increased production, might in fact augur against adoption of some recommendations/technologies if increased production simply leads to lower unit prices and therefore neutral or negative impacts on farmers' net revenue. A further shortcoming is that the team has had limited access to, and no support from, the IEA and does not have access to an IEA Evaluation Analyst. These and the lack of a functioning Management and Evaluation System limit the team's ability to analysis the information collected. Yet another is that the Management Entity has still not provided the Evaluation Team with consolidated details of contacts within the Grain Legumes, of external partners, of meetings and other events suitable for capturing multiple actors/stakeholders for interview. Finally, the attention given to this Evaluation by members of the Grain Legumes has justifiably been constrained due to the ongoing re-organisation/merging of CRPs.

7. Evaluation Governance: Roles and Responsibilities

The CCEE team leader has final responsibility for the evaluation report and all findings and recommendations, subject to adherence to CGIAR Evaluation Standards. The evaluation team is responsible for submitting the deliverables as outlined in this report.

CCEE is commissioned by Grain Legumes management, managed by a one of its staff members specifically provided with the authority and independence to manage evaluations, and overseen by an oversight body, which is set up specifically for the evaluation. CRP management is responsible for responding to the evaluation team's informational needs. It provides documentation and data, information on all Grain Legumes activities, access to staff for engagement with the evaluators, and information on partners and stakeholders. It facilitates arrangement of site visits and appointments within and outside the lead centre and other stakeholders. Grain Legumes management assists in dissemination of the report and its finding and lessons and it acts on the

accepted recommendations. The Evaluation Manager will coordinate the design, implementation and follow-up of the CCEE.

For the CCEE for Grain Legumes, one of the five CRPs that have not undergone a full IEA-commissioned CRP evaluation, the IEA has committed to providing a framework and methodological support to the CRPs to conduct self-assessments on progress and to verify the continued validity of the Grain Legumes planned impact pathways:

To assist the CRPs in initiating the process, IEA prepared and shared a Common Framework document. The framework provided the background, timeline, modalities and potential approaches. This was followed by a meeting of CRP Directors and evaluation focal points for the 5 CRPs held in Washington DC (June 26-27, 2014), with discussions among the five CRPs on the focus of evaluations and potential ways forward. The CRP Directors came to a clear decision to undertake CRP commissioned evaluations with advice and quality assurance by the IEA. The draft report of the evaluations would be available in sufficient time to feed into the design of proposals in response to the second call in 2015 and the final report to be available to the Consortium and Fund Council to assist them in their consideration of the proposals.

An Oversight Committee has been set-up to work with the Grain Legumes Management, through the evaluation manager to ensure good communication with, learning by, and appropriate accountability to primary evaluation clients and key stakeholders, while preserving the independence of evaluators. The Oversight Committee has membership as per the guidelines issued by the IEA, including the Chair/member of the Lead Centre Governing Board together with the requirement for gender and representational diversity as shown in Table 12.

Table 12. Membership of the oversight committee.

	Names with Designation	Particulars
1	Paco Sereme, Member, Governing Board, ICRISAT Research Director, Plant Pathology, National Agricultural Research Institute (INERA), Burkina Faso Email: Paco.Sereme@CORAF.ORG	Chair
2	Abdulkadir Aydogan General Directorate of Agricultural Research (GDAR), Turkey Email: akadir602000@yahoo.com	Member
3	J S Sandhu Deputy Director General (Crop Science), Indian Council of Agricultural Research (ICAR), New Delhi, India	Member

	Email: ddgcs.icar@nic.in	
4	TH Noel Ellis Director, CRP on Grain Legumes, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Telangana, India Email: n.ellis@cgiar.org	Member and Convener
5	Asnake Fikre Director of Crop Research Process, Ethiopian Institute of Agricultural Research (EIAR). Addis Ababa, Ethiopia Email: fikreasnake@yahoo.com	Member
6	Peter Carberry Deputy Director General (Research), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Telangana, India Email p.carberry@cgiar.org	Member
7	Ylva Hillbur Deputy Director General (Research), IITA, Ibadan, Nigeria Email: Y.Hillbur@cgiar.org	Member
8	Urs Zollinger or King Alison, CGIAR- IEA , c/o FAO Rome, Italy Email: info@kingzollinger.ch	Member
9	GG Koppa Senior Program Manager, CRP on Grain Legumes, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Telangana, India Email: g.koppa@cgiar.org	Member and CCEE Manager

For maximum usefulness, both governance and management structures for a CRP is going to work together with the IEA and other key stakeholders in planning the schedule of CCEE, commissioning it and deciding what they should address.

Table 13. Typical roles and responsibilities in CCEE

Role	Who	Responsibilities
Decision to Evaluate	CRP Governing Body	Oversee: -the design of the evaluation, development of TOR and contracting of evaluators; -feed-back on final draft report and management response to final report; track responses to evaluation recommendations.
CCEE oversight Committee	An ad-hoc panel, representative of participation in the CRP with representation from management, governance and external stakeholders	Provide Oversight for: -the design of the evaluation and development of TOR; -contracting of evaluators; observance of transparent and independent evaluation process, protecting the independence of the evaluation; -feed-back on final draft report; - will not have authority to modify evaluation findings or recommendations.
Evaluation manager	CRP staff member responsible for evaluation	-Plan and manage the design of the evaluation; -prepare TORs, develop and manage the evaluation reference group; -contract and pay the evaluators; -brief evaluators and provide them with logistical support; -compile documentation and data, including pre-analysis; -put evaluators in contact with key

		people; -troubleshoot emerging problems and conflicts; -give feedback to the draft evaluation report and provide quality assurance; -manage feedback processes including communication events; -assure the quality of the evaluation process and evaluation outputs; principal point of liaison with the Evaluation Team.
Evaluation team	Independent team of evaluators	-Working as a team to plan and conduct the evaluation; -gathering and analysing data, information and perceptions; -contribute to written reports and presentations of findings, under the direction of the team leader.
Evaluation team leader	Independent expert, with appropriate skills for the CCEE and good team leader qualities.	-Further develop the evaluation design as lead author of the inception report; -lead the evaluation team, the evaluation and the production of reports; normally lead author on the evaluation report and main presenter of findings and conclusions; -principal point of liaison with the Evaluation Manager and CRP management.
CRP management	CRP leader	Normally member of oversight body, s/he will: -brief CRP staff and partners about the evaluation; -coordinate accumulation and preparation of CRP data and information during the entire evaluation process;

		-help connecting with stakeholders; -allocate adequate time and resources for staff to engage with evaluators and provide information, support in logistics; -develop a management response to the evaluation, including follow-up actions; -help communicate findings and lessons, and act on accepted recommendations.
CRP staff	Team leaders and lead researchers in particular	Collaborate with evaluators in providing information.
Response to and follow-up of the evaluation	CRP Governing Body Lead-Centre Board	Review management response and decide on actions to be taken based on the evaluation and management response. Monitor implementation.

8. Expected Outputs and Dissemination

The review team will present an Evaluation Report, not longer than 100 pages [excluding Annexes] that will highlight the strengths but also address the weaknesses of the Grain Legume CRP with prioritised recommendations based upon the findings gathered throughout the evaluation process through investigation of documented paperwork, interviews and surveys. The final document will be prefaced by an Executive Summary. During crafting of the report stakeholders will be consulted throughout the review process and a subset of stakeholders will be invited to comment on drafts of the final report.

9. References

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CRP Grain Legumes Gender Strategy, Gender Study reports

CRP Grain Legumes Lead Center Financial Reporting for 2013-Execution (http://1drv.ms/1MWBKoa)

Member CRP Grain Legumes-Lead Center Financial Reporting for 2013-Execution (http://1drv.ms/1MWBKoa)

CRP Grain Legumes-Lead Center Financial Reporting for 2014-Execution

Documents relating to Competitive /commissioned grants, USAID Linkage program and Legume Scholar program (budget, calls, evaluation and progress)

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Appendix 1: Evaluation Matrix

The matrix sets out a framework for the evaluation of the Grain Legumes program. It systematically proposes bases of judgement for each evaluation theme, highlights the associated issues and indicators, then lists the proposed sources to inform the evaluation and summarises the evaluation product in terms of the deliverable report.

Evaluation Theme	Proposed bases of judgement	Issues and indicators	Proposed information sources	Proposed evaluation product
1. Effectiveness	1.1 Focus on the overarching aims and vision for Grain Legumes . Goals achieved. Likelihood of success. 1.2 Quality of outputs to date. 1.3 Productivity (quantity of outputs re investment).	Comparison of each PL to the five strategic components and the frameworks (Figure 1 in Inception Report). Management of the Grain Legumes and its FPs and its accountability to the funding sources. Discussion of the SLOs in terms of academic quality of science. Ability to react to external stimuli (reviewing the change from the 5 SC/8PL to 8 FP) and capacity to capitalise upon relevant research undertaken by non-Grain Legumes	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. E-survey with researchers and partners. Focus group discussions where achievable. Evidence from country visits.	Table summarising perception of effectiveness from e-survey; findings of interviews and sampled research from visits to projects.

		agencies/institutes.		
2. Relevance	2.1 Focus on whether the aims of the Grain Legumes are still fit for purpose and relevant to the global community. . 2.2 Relevance of original objectives in terms of research approach. 2.3 Composition of partners, institutes and countries involved; ensuring that the best are engaged in the research. .	Comparison of Grain Legumes progression with current science. Relevance of the composition of partners, institutes and countries involved. Review of the distribution of responsibilities and the allocation of projects. Collaborative potential achievement.	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. E-survey with researchers and partners. Focus group discussions where achievable. Evidence from country visits.	E-survey findings and narrative discussion of findings from interviews.
3. Impact including capacity-building	3.1 Focus on contributing to impacts across scale. Clarity of required impacts, their ongoing monitoring and potential achievability. 3.2 Attention to capacity development. Research, approaches and mechanisms	Grain Legumes activity has led to measureable impact for end-user beneficiaries. Explore potential effect on outputs/impact associated with the change from the 5 SC/8PL to 8 FP.	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers,	Summary of the perceived outcome of strategic changes and potential achievability of original project aims and objectives.

	with the greatest potential for impact.	Assess methods for implementing capacity-building within each product line, and how well staff at all levels feel they can contribute ideas towards capacity-building. .	partners and farmers. E-survey with researchers and partners. Focus group discussions where achievable. Evidence from country visits. Interviews with CGIAR, Grain Legumes and external stakeholders. E-survey with management and researchers.	E-survey results.
4. Gender and equality	4.1 Specific focus on gender and equality issues.	Review the efforts and resources allocated to gender issues. Contribution of each product line to increase income, food security, nutrition, environmental and resource conservation for resource-poor women (and men).	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. E-survey with researchers	Summary of the perceived outcome of gender balance and equality. E-survey results.

		Investigate gender balance achieved in delivering each programme, through providing demonstration or test farms, participating in varietal selection and managing production, as set out in the Grain Legumes proposal.	and partners. Focus group discussions where achievable. Evidence from country visits. Interviews with farmers and women in households (subject to time constraints).	
5. Efficiency including: Governance and management	5.1 Appropriately funded, effective and efficient management systems and governance arrangements including human resources. Effective evaluation and review systems – internal and external.	Management and stakeholder views of performance management systems including: HR Policy and arrangements. Staff appraisal and performance management. Staff consultation mechanisms.	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. Focus group discussions where achievable. Evidence from country visits. Evidence and examples	Summary of findings with examples of good practice or recommendations for enhancement.

			provided by Grain Legumes . Review of IAP arrangements and Steering Committee. Document review: Grain Legumes reports. Evidence of staff consultation. E-survey with above stakeholders. Review of Grain Legumes www site.	
Consultation and communication processes	5.2 Effective communication processes with regard to Grain Legumes . Clarity with regarding whom to contact. Consultation processes effectively engaging with the relevant stakeholders. Dynamic and effective relationships between the various stakeholders in terms of achieving programme	Management and stakeholder views of communication systems including: Clarity of roles and responsibilities. Representation at meetings. Other communication	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. Focus group discussions	Summary of findings with examples of good practice or recommendations for enhancement.

	outcomes/objectives. Assessment and decision-making processes, and progress monitoring in terms of providing feedback to all.	methods.	where achievable. Evidence from country visits. Evidence and examples provided by Grain Legumes . Review of IAC arrangements and Steering Committee. Document review: Grain Legumes reports. Evidence of staff consultation. E-survey with above stakeholders. Review of Grain Legumes www site.	
Budgets and finance	5.3 Resource allocation, stability and timeliness of funding. Administrative overheads and costs.	Budget planning, monitoring and review. Allocation of budgets to outputs and outcomes.	Evidence of appropriate disbursement. Review of financial and audit reports.	Summary of evidence relating to funding difficulties and associated impacts. Recommendations where

		Effects of late disbursements. Management, staff and funder views on transaction costs. Organisational response to financial issues.	Interviews with Grain Legumes Director, Finance Officer, key donors. Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with relevant stakeholders. Focus group discussions where achievable. Evidence from country visits. Evidence and examples provided by Grain Legumes . Review of IAP arrangements and Steering Committee. Document review: Grain Legumes reports.	appropriate.

			Evidence of staff consultation. E-survey with above stakeholders. Review of Grain Legumes www site.	
Value added	5.4 Perceived value added by Grain Legumes at international, national and local level. Roles of programme management in terms of adding value (programme design and implementation, management and commissioning processes).	Triangulation of perceived value with other views and documentary evidence.	Document review: Grain Legumes and CGIAR reports and other communications. Semi-structured interviews with management, researchers, partners and farmers. E-survey with above stakeholders. Focus group discussions where achievable. Evidence from country visits.	Summary of responses, highlighting added value against critique.
6. Partnerships	6.1 Effective and efficient co-ordination among centres, Grain	Awareness and implementation of	Document review: Grain Legumes and CGIAR	Summary of findings with examples of good practice or

	Legumes and partners.	Partnership Strategy. Collaborative planning, prioritisation, implementation and review. Minimal duplication or conflict of efforts. Collaborative, participatory, shared research methods. Shared costing and facilities. Effective knowledge transfer, inter- and intra-communications. Recognising and capitalising on capacity-building opportunities with partners.	reports and other communications. Semi-structured interviews with relevant stakeholders. Focus group discussions where achievable. Evidence from country visits. Evidence and examples provided by Grain Legumes . Review of IAP arrangements and Steering Committee. E-survey with above stakeholders. Review of Grain Legumes www site.	recommendations for enhancement. E-survey results.
7. Quality of Science	7.1 Utilising technologies to increase fundamental understanding of the biology	Whether data is collected in response to hypothesis driven research and whether	Using peer-accepted measures of quality, benchmark against other	Identify areas that can be used as flagships and others that require support and

	underpinning several PLs. 7.2 Access to resources, to peer and supervisory support and oversight [and accountability or lack thereof]. 7.3 Publications in interdisciplinary areas. 7.4 Review and evaluation	it is used in the most effective way. Effectiveness of scientific capacity-building activities undertaken through the programme. What quality are the research outputs such as publications and genetic material? What internal processes and conditions, including research staff and leadership quality, exist to assure adequate science quality?	CRPs [those with evaluations completed]. Assessment will refer to a recent study conducted by Elsevier on Centre publications output. Semi-structured interviews with management, researchers and partners. E-survey with researchers and partners. Evidence and examples provided by Grain Legumes . Review of IAP arrangements and Steering Committee. E-survey with above stakeholders. Review of Grain Legumes www site.	quality control.

8. Sustainability (outcomes and financial)	8.1 Likelihood that outcomes and impact will be achieved after the Grain Legumes ends. Members of the Grain Legumes will ensure that funding is secured to continue activity after the Grain Legumes is completed.	Pipelines are in place that ensure progressive delivery of products and services to end-user beneficiaries. Management and stakeholders have in place a strategy to attract further funding.	Document review: Grain Legumes and CGIAR reports and other communications. Evidence of impact pathways. Evidence that stakeholders have discussed future support. Survey of donor/other funding agencies. Review of financial reports.	Summary of findings from formal and informal discussions.

Appendix 2: Table of sample Questions for Semi-structured and Online Interviews

This table contains questions that may be asked during semi-structured interviews during the evaluation process. It is unlikely that all respondents will be asked to respond to all questions. A selection of the most relevant prioritised questions will be utilised. Answers based on a scale 1-5 and chance to comment on each.

Note: Number referencing in this table aligns with the Question Matrix Table which summarises the various question themes, sources of information and evaluation products.

Matrix ref.	Base of judgement	Line of inquiry
1. EFFECTIVENESS		
1.1	Overarching vision for Grain Legumes: General	The overall vision for Grain Legumes was that increased production, sales and consumption of grain legumes would reduce poverty, hunger and malnutrition of small holder farmers, while improving the health of mankind and the sustainability of farming systems. What do you understand by that vision and how would you describe progress towards that aim? How well do the PL/themes/challenges describe the work covered by the Grain Legumes ? Is the Grain Legumes strategically coherent and consistent with the main goals and System Level Outcomes presented in the CGIAR's Strategy and Results Framework? Does the work covered by Grain Legumes address key issues of food security? If yes, which ones: food availability, nutritional quality of food, water use, chemical use, post-harvest quality and waste reduction? Does Grain Legumes play an appropriate role as global leader, facilitator or user of research compared to partners and other research suppliers?
1.1	Overarching vision for Grain Legumes: Co-ordination	How effectively are Grain Legumes partners leveraging their knowledge and research capacities by coordinating strategies with diverse public and private organisations?
1.1	Overarching vision for Grain Legumes: General performance	Have there been sufficient efforts to document outcomes and impact from past research with reasonable coverage over research areas? What can be concluded from the findings of ex post studies and other evidence, for instance in terms of magnitude of impact in different geographical regions relevant for Grain Legumes and equity of benefits; the sustainability of past benefits and on the extent to which positive outcomes demonstrated at pilot or small-scale level

		likely to be sustained and out-scalable? What is the comparative advantage of Grain Legumes in terms of the CGIAR's mandate of delivering international public goods relative to other international initiatives and research efforts, including the private sector; and partner country research institutions or development agencies? Through collaborative work, is the Grain Legumes improving the performance of eight priority grain legumes in households, on farms, and in markets?
1.1	Overarching aims and vision for Grain Legumes : Production performance	The Grain Legumes aims to improve the production performance of grain legumes in distinct farming systems. What progress has there been to reviewing (i) productivity constraints, (ii) barriers to technology adoption and use, and (iii) threats to production? How do you assess post-harvest quality in your PL? (For example, multiple new varieties with better and reliable yields will reach more farmers who cultivate marginal lands. Larger harvests will benefit households by improving food supply and market sales. Other varieties will improve the competitiveness of grain legumes within farming systems by enabling labour-saving technologies to reduce weeding and harvesting costs.)
1.1	Overarching vision for Grain Legumes : Sales performance	What progress is there towards improving the sales performance of grain legumes in diverse local, national and international markets? *(For example, better at home-storage capacity and market information will enable smallholder farmers to obtain fair prices. Farmer associations, cooperatives and private businesses will increase the value of grain legumes by sorting, grading, processing, packaging, and promotion. Such organisations will also facilitate access to inputs such as new technologies, financial credit and crop insurance. Coordination with the private and NGO sectors will enable grain legumes to expand existing niche opportunities such as: local and national consumer demands for ready-to-eat and snack foods, international markets for traditional products, urban food eaters willing to pay more for healthy socially- and ecologically-conscious foods, and environmental service markets ready to compensate farmers for reducing greenhouse gas emissions.)*
1.1	Overarching vision for Grain Legumes : Dietary	Is there evidence of Grain Legumes improving the dietary performance of grain legumes in all households? How do you assess nutritional status in your PL? How do you assess nutritional quality of your crop; i.e. its benefit to the

	performance	consumer, in your PL? (Consumption of grain legumes will enable smallholder farm families to better meet their nutritional requirements of proteins, macro- and micronutrients, vitamins, fiber and health promoting carbohydrates. In addition, coordination with public health sector and private food companies will increase promotional efforts and motivate more frequent consumption of grain legume, thereby reducing obesity and cardiovascular diseases. Legumes are superior sources of lysine and therefore complement low lysine cereal diets to further increase the value of the combined proteins. Increased consumption of grain legumes will reverse trends towards eating animal-based protein, and thus help reduce negative impacts of agriculture on land and the atmosphere.)
1.1	Overarching aims and vision for Grain Legumes : Environmental performance	The Grain Legumes vision focuses on combined advances in grain legume production, sales and dietary performance in improving the environmental performance of agriculture-food systems; what progress is being made? *(For example, crop rotations and inter- and mixed-crops with grain legumes will help sustainably intensify farming systems and support global efforts to reduce deforestation and climate change. It is expected that the symbiotic ability of legumes to capture certain nutrients such as phosphorus and potassium, will improve soil fertility of cereal-legumes systems. Their fodder residues being rich in protein are expected to take an increasingly important role in cattle feed.)*
1.2	Quality of outputs to date: (SLO 1) Reduce Rural Poverty	What evidence is there of smallholder farm households both consuming and selling grain legume crop products? What evidence is there of grain legumes helping meet household needs and generating income by yielding valuable and diverse products, such as grains, oil, pods, peas, leaves, haulm, and press-cake?
1.2	Quality of outputs to date: (SLO 2) Secure food supplies	What evidence is there that, within farming systems, grain legumes are fitting into underutilised niches? What progress is there towards total food production increasing per unit land area? Also, increased on-farm crop diversity helping to reduce food supply risks from environmental shocks and hazards? *(For example, legumes sown later in the season often escape drought and disease that devastate other crops, thereby providing a harvest and family food supply. The use of legume haulms to improve fodder quality contributes to the productivity of the animals that provide the poor with draft power, milk, meat and income.)*

1.2	Quality of outputs to date: (SLO 3) Improve diets as a nutritious, healthy food	What evidence exists to support the shift towards increasing legume intake in humans? Low lysine content is the limiting constraint in cereal-dominated diets relative to human amino acid balance, such as a maize-based diet in eastern and southern Africa. Legumes are superior sources of lysine, and increase the biological value of the combined protein. Legumes also have other important positive effects. (For example, Enhanced iron concentration in beans was shown to improve iron status in Mexican school children (Haas et al. 2010). Grain legumes exhibit low glycemic index thus reducing the risk of obesity and diabetes (Foster-Powell K. et al. 2002). Grain legume consumption also has positive effects on colon and breast cancer (Correa 1981; Hangen and Bennink 2003; Thompson et al. 2008) and cardiovascular disease (Kabagambe et al. 2005). Preliminary tests with HIV/AIDS victims fed grain legumes shows an increase in cell counts of CD4 cells, a primary element of the immune system (M. Bennink, personal communication).)
1.2	Quality of outputs to date: (SLO 4) Sustainably intensify farm production	Is there evidence of improved crops, or enhanced finances of smallholder farmers and the agricultural system from the ability of grain legumes to fix nitrogen in soils? (Through gradual release of nitrogen from decaying root biomass, grain legumes can improve overall nitrogen balance in farming systems as compared to chemical nitrogen-only strategies (Crews and Peoples 2005; Nyiraneza and Snapp 2007). Consequently, legumes help reduce fertilizer costs for cash-limited smallholders. Legumes also serve as a break to damaging weed and disease cycles, and extend the duration of vegetative cover thereby reducing soil erosion. Grain legumes further improve the capture, productive use and recycling of water and nutrients, such as end-of-season residual and fallow moisture. Use of their vegetative matter as fodder also enriches nitrogen-limited livestock diets, enhancing the sustainability potential of crop-livestock mixed farming systems. Moreover, as a synergistic complement to chemical nitrogen fertilizer, grain legumes reduce fossil fuel use and associated emissions of greenhouse gases that contribute to climate change.)
1.3	Productivity: Likelihood of success	Have adequate constraint analyses and lessons from ex post studies informed program design for enhancing the likelihood of impact? To what extent is the programme progressing towards the four System Level Outcomes (SLO): Poverty, Food security, Improved diets and Sustainable

		intensified farm production? To what extent have planned outputs and outcomes been achieved or are likely to be achieved?
1.3	Productivity: Quantity of outputs re investment	Which do you consider to be the most cost-effective SLO? Why do you think this?
1.3	Productivity: Quantity of outputs re investment	Describe the impacts of changing from 5SC/8PL to 8FPs. What difference has this made to Grain Legumes productivity in terms of outputs? Are goals still clearly defined?
2. RELEVANCE		
2.1	Relevance: Fit for purpose	Does the program target an appropriate set of Intermediate Development Outcomes (IDOs) and do the activities (in the Grain Legumes Product Lines/Clusters of Activities) cover and/or make reasonable assumptions about the results of other actors' work for achievement of program objectives? What indications exist as to the comparative international reputation and quality of the science? Have constraints to outcomes and impacts been considered in the program design, for example through assessment of the assumptions and risks in reliance on policies, actions of national institutions, capacity and partnerships?
2.2	Relevance: Original objectives in terms of research approach	What are the linkages between pre-Grain Legumes goals and current outcomes? Do the impact pathways logically link the principal clusters of activities to the IDOs and are the IDO linked to the SLOs through plausible theories that take into account trade-offs between multiple objectives? How relevant are the outputs and achievements to date? What lessons have been learned and what recommendations could improve the relevance and scientific rigour of other programmes?
2.3	Relevance: Composition of partners, institutes and countries involved.	How relevant are the stakeholders and program countries to the program? How relevant is the program to the stakeholders? Are the partnerships chosen and managed so as to maximize efficiency for results? Are such a mega-programs better than the sum of its parts---that is, could the same research have been done just as well or better if the four centres had worked independently? What are some outputs/outcomes that demonstrate positive synergy among

		the various partners?
3.	IMPACT	
3.1	Impacts: Across scale	What is the potential for economic and social impacts, including potential to scale up or scale out the research investments? How does your work achieve impact in the wider community? Are there communities with whom you would like to work?
3.1	Impact: Potential	What types of research, approaches and mechanisms seem to have the greatest potential for impact? Conversely, what have the least potential for impact? What lessons can be learned for future investment? Are you restricted in what you can achieve by time, funds, administrative support, technical kit, quality of researchers, mentoring, or communications with other centres?
3.1	Impact: Benefits	What, overall, have been the successes and weaknesses of the programme, both relevant to the original goals and any unanticipated benefits?
3.2	Capacity-building: Strategy	What is the strategy for capacity-building? Is it adequately resourced, implemented and reviewed?
3.2	Capacity-building: Implementation	What significant Grain Legumes capacity-building activities have occurred in the last 6 months/year? To whom were they targeted? Who initiated them? How are they evaluated? Was their impact monitored or reviewed?
3.2	Capacity-building: Examples	Can you share some specific examples of effective capacity-building?
3.2	Capacity-building: Scientific	What has been the effectiveness of scientific capacity-building activities undertaken? How have they enhanced collaborative potential?
4.	GENDER	
4.1	Gender: Strategy	To what degree were gender dimensions considered, either implicitly or explicitly in the programme? Has gender been adequately considered in research design in terms of relevance to, and effect on, women? What lessons have been learned; what recommendations

		would help future programmes?
4.1	Gender: Resource allocation	How are resources and effort actively directed towards gender issues?
4.1	Gender: Impact	How adequately has gender been considered in the impact pathway analysis, in terms of the differential roles of women and men along the impact pathway, generating equitable benefits for both women and men and enhancing the overall likelihood enhancing the livelihoods of women and also the nutritional status of women and children? How has each product line contributed to increased income, food security, nutrition, environmental and resource conservation for resource-poor women (and men)?
4.1	Gender: Balance	How is gender balance achieved in delivering each programme? Have women participated in demonstration or test farms, participating in varietal selection and managing production, as set out in the Grain Legumes proposal?
4.1	Gender: Sales performance aim	What gender-sensitive training and investments in post-harvest processing have developed to support the drive towards better sales performance for women? Is there evidence to support the sales performance aim that women will not only maintain their prominent role in managing grain legumes on farm, but will also increase their role in other links of the value chain?
4.1	Gender: Specific SLO1	Are processed products from these raw materials adding value and generating income-earning opportunities for poor people, especially women?
5. GOVERNANCE AND MANAGEMENT		
5.1	Governance: Planning	Were you or anyone from your organisation involved in the initial planning of Grain Legumes ? How were they involved? Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity?
5.1	Governance: Roles and responsibilities	How would you rate your understanding of the organisational structure into which your project fits? Are roles and responsibilities clearly defined at all levels?

5.1	Governance: Implementation	How well do you understand/have knowledge of the key questions addressed by the project/program you are working on? How clear is the pathway to implementation? Where strategic changes are made, such as the introduction of FPs, how are work plans revised and relaunched? To what other projects do you contribute and how is your time allocated (%)? To which themes/PLs do you contribute within the GRAIN LEGUMES–officially or goodwill? Do you have access to all the equipment and training? Is there anything you need?
5.1	Governance: Review	How much information do you receive about progress of other projects within your program? What evaluations have been undertaken and were findings shared? What follow-up action occurred to facilitate progress with regard to lessons learned? To what degree do you feel your views are taken into consideration when reporting project progress?
5.1	Governance: Management systems	To what extent have the reformed CGIAR organisational structures and processes increased (or decreased) efficiency and successful program implementation? Are the Grain Legumes institutional arrangements and management and governance mechanisms efficient and effective? Is the monitoring and evaluation system adequate and efficient for recording and enhancing Grain Legumes processes, progress, and achievements? What are the Human Resources policy and arrangements? How are they implemented? What performance monitoring tools are used? Are they effective?
5.1	Governance: Staff appraisal	What performance monitoring tools are used? Are they implemented by the Grain Legumes or its contributing institutions? Are they effective? Is there a formal staff appraisal procedure?
5.1	Governance: Staff consultation	What mechanisms exist for formal consultation and communication with staff?
5.2	Consultation and communication: Processes	How much interaction/team-working is there with other projects in your program? To what extent do sub-centres gain from involvement with lead centres? How effective are communication processes with regard to the Grain Legumes ? Are reporting and networking functions clear?
5.2	Consultation and communication:	How are changes, such as the introduction of FPs, communicated?

	Change	
5.2	Consultation and communication: Stakeholders	How effectively are consultation processes engaging with the relevant stakeholders? Are stakeholders clear about whom to contact?
5.2	Consultation and communication: Progress towards goals	How dynamic and effective are relationships between the various stakeholders in terms of achieving programme outcomes/objectives?
5.2	Consultation and communication: Review	How are decision-making processes monitored and reviewed? What is the procedure for identifying relevant recipients and providing feedback?
5.3	Budgets and finance: Processes	What is the process for Budget planning, monitoring and review?
5.3	Budgets and finance: Allocation and Attraction	How are budgets allocated to outputs and outcomes? How does this impact on future actions? What is the use of core-type funding (Windows 1 and 2) for leveraging bilateral funding and alignment of bilateral projects within program strategy? What are the prospects for sustaining financing, for example, for long-term research programs and key partnerships?
5.3	Budgets and finance: Late disbursement	What is the impact of late and fickle disbursements?
5.3	Budgets and finance: Overheads and costs	If transaction costs are not monitored, how are they perceived by management, staff and funders?
5.3	Budgets and finance: Organisational response	How does Grain Legumes respond to budget issues? What is the organisational reaction?

5.4	Value added: Overall perception	What value has been added by the programme's design and implementation, management and commissioning processes? What lessons can be learned?
5.4	Value added: Implementation and specific roles	What value has been added by programme organisation and/or delivery mechanisms? How effective have been the roles of programme management in adding value? What lessons have been learned?
5.4	Value added: Limitations	What issues or constraints have arisen?
5.4	Value added: Successes and weaknesses	What, overall, have been the successes and weaknesses of the programme, both relevant to the original goals and any unanticipated benefits?
6. PARTNERSHIP		
6.1	Partnerships: Strategy	Is there a partnership strategy and how is it implemented?
6.1	Partnerships: Involvement	To what extent are the partnerships relevant and cover the relevant partner groups to achieve program objectives? How is partner involvement managed? Is there a key database with data on contact information, records of communications? Have any partnerships been terminated, and how was this managed? Are records kept?
6.1	Partnerships: Budgets	How are partnership budgets set, allocated and managed?
6.1	Partnerships: Co-ordination	How effective and transparent are communications between the program and partners and between partners?
6.1	Partnerships: Effectiveness	To what extent/how have effective partnerships been built? To what extent are the partnerships relevant and cover the relevant partner groups to achieve program objectives?
6.1	Partnership: Interaction, collaboration and application	What has been the degree of interaction between scientists involved in the programme and potential users of the scientific research emerging from the program? What steps are being taken to ensure that the outputs of the research may be effectively used or applied by policymakers and

		practitioners?
6.1	Partnerships: Growth	Which partners have grown successfully during the program? Which have been less successful? Why do you think this happened and what lessons can be learned?
6.1	Partnerships: Capacity-building	To what extent do capacity-building efforts address partners' needs? Does capacity-building target women as well as men adequately and their differential needs taken into account? To what extent are capacity issues taken into account in the impact pathway analysis? Are capacity-building efforts integrated with the research mandate and delivery of the Grain Legumes? Are the capacity-building efforts and incentives among partners adequate for enhancing the long-term sustainability of program effects? Are there demonstrable outputs and outcomes of capacity-building/synergy among the various partners?
6.2	Partnerships: Strengths	What have been the comparative roles and relative strengths of the partnerships established within Grain Legumes projects? Have the Grain Legumes research activities been adequately prioritized in line with resource availability and partner needs? What lessons learned and recommendations might help to enhance future programmes?
7. QUALITY OF SCIENCE		
7.1	Quality of Science: Utilising technologies to increase fundamental understanding of the biology	What access is available to innovative technologies that allow for cutting-edge scientific advances? How does the research design, problem-setting and choice of approaches reflect high quality and up-to-date scientific thinking, state of art knowledge and innovation in all areas of research? Do citation indices indicate relevance/scientific esteem of research and published outputs? Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity?
7.2	Quality of outputs to date: Innovation	What approaches have been novel or innovative? How is academic quality monitored, managed and evaluated. What is the level of scholarship?
8. SUSTAINABILITY		
8.1	Sustainability: Outputs lead to	What impacts in terms of environmental sustainability, income generation and nutrition security are in place or likely

	sustainable outcomes and impacts	to be achieved? How does the Grain Legumes expect benefits of its activities to be sustained and the Grain Legumes ends? How do partners prepare for this?
8.2	Sustainability: Grain Legumes value-added activities continue post Grain Legumes -funding	What is the quality and sustainability of partnerships that will lead to post-project continuation? What steps are put in place to ensure sustainable funding?
Matrix ref.	Base of judgement	Line of inquiry
1. EFFECTIVENESS		
1.1	Overarching vision for Grain Legumes : General	The overall vision for Grain Legumes was that increased production, sales and consumption of grain legumes would reduce poverty, hunger and malnutrition of small holder farmers, while improving the health of mankind and the sustainability of farming systems. What do you understand by that vision and how would you describe progress towards that aim? How well do the PL/themes/challenges describe the work covered by the Grain Legumes ? Is the Grain Legumes strategically coherent and consistent with the main goals and System Level Outcomes presented in the CGIAR's Strategy and Results Framework? Does the work covered by Grain Legumes address key issues of food security? If yes, which ones: food availability, nutritional quality of food, water use, chemical use, post-harvest quality and waste reduction? Does Grain Legumes play an appropriate role as global leader, facilitator or user of research compared to partners and other research suppliers?
1.1	Overarching vision for Grain Legumes : Co-ordination	How effectively are Grain Legumes partners leveraging their knowledge and research capacities by coordinating strategies with diverse public and private organisations?
1.1	Overarching vision for Grain Legumes : General performance	Have there been sufficient efforts to document outcomes and impact from past research with reasonable coverage over research areas? What can be concluded from the findings of ex post studies and other evidence, for instance in terms of magnitude of impact in different geographical regions relevant for Grain Legumes and equity of benefits; the sustainability of past benefits and on the extent to which positive outcomes demonstrated at pilot or small-scale level likely to be sustained and out-scalable? What is the comparative advantage of Grain Legumes in terms of the CGIAR's mandate of delivering international public goods relative to other international initiatives and research efforts, including the private sector; and partner country research institutions or development agencies? Through collaborative work, is the Grain Legumes improving the performance of eight

		priority grain legumes in households, on farms, and in markets?
1.1	Overarching aims and vision for Grain Legumes : Production performance	The Grain Legumes aims to improve the production performance of grain legumes in distinct farming systems. What progress has there been to reviewing (i) productivity constraints, (ii) barriers to technology adoption and use, and (iii) threats to production? How do you assess post-harvest quality in your PL? (For example, multiple new varieties with better and reliable yields will reach more farmers who cultivate marginal lands. Larger harvests will benefit households by improving food supply and market sales. Other varieties will improve the competitiveness of grain legumes within farming systems by enabling labour-saving technologies to reduce weeding and harvesting costs.)
1.1	Overarching vision for Grain Legumes : Sales performance	What progress is there towards improving the sales performance of grain legumes in diverse local, national and international markets? *(For example, better at home-storage capacity and market information will enable smallholder farmers to obtain fair prices. Farmer associations, cooperatives and private businesses will increase the value of grain legumes by sorting, grading, processing, packaging, and promotion. Such organisations will also facilitate access to inputs such as new technologies, financial credit and crop insurance. Coordination with the private and NGO sectors will enable grain legumes to expand existing niche opportunities such as: local and national consumer demands for ready-to-eat and snack foods, international markets for traditional products, urban food eaters willing to pay more for healthy socially- and ecologically-conscious foods, and environmental service markets ready to compensate farmers for reducing greenhouse gas emissions.)*
1.1	Overarching vision for Grain Legumes : Dietary performance	Is there evidence of Grain Legumes improving the dietary performance of grain legumes in all households? How do you assess nutritional status in your PL? How do you assess nutritional quality of your crop; i.e. its benefit to the consumer, in your PL? (Consumption of grain legumes will enable smallholder farm families to better meet their nutritional requirements of proteins, macro- and micronutrients, vitamins, fiber and health promoting carbohydrates. In addition, coordination with public health sector and private food companies will increase promotional efforts and motivate more frequent consumption of grain legume, thereby reducing obesity and cardiovascular diseases. Legumes are superior sources of lysine and therefore complement low lysine cereal diets to further increase the value of the combined proteins. Increased consumption of grain legumes will reverse trends towards eating animal-based protein, and thus help reduce negative impacts of agriculture on land and the atmosphere.)
1.1	Overarching aims and vision for Grain Legumes : Environmental performance	The Grain Legumes vision focuses on combined advances in grain legume production, sales and dietary performance in improving the environmental performance of agriculture-food systems; what progress is being made? *(For example, crop rotations and inter- and mixed-crops with grain legumes will help sustainably intensify farming systems and support global efforts to reduce deforestation and climate change. It is expected that the symbiotic ability of legumes to capture certain nutrients such as phosphorus and potassium, will improve soil fertility of cereal-legumes systems. Their fodder residues*

		being rich in protein are expected to take an increasingly important role in cattle feed.)
1.2	Quality of outputs to date: (SLO 1) Reduce Rural Poverty	What evidence is there of smallholder farm households both consuming and selling grain legume crop products? What evidence is there of grain legumes helping meet household needs and generating income by yielding valuable and diverse products, such as grains, oil, pods, peas, leaves, haulm, and press-cake?
1.2	Quality of outputs to date: (SLO 2) Secure food supplies	What evidence is there that, within farming systems, grain legumes are fitting into underutilised niches? What progress is there towards total food production increasing per unit land area? Also, increased on-farm crop diversity helping to reduce food supply risks from environmental shocks and hazards? *(For example, legumes sown later in the season often escape drought and disease that devastate other crops, thereby providing a harvest and family food supply. The use of legume haulms to improve fodder quality contributes to the productivity of the animals that provide the poor with draft power, milk, meat and income.)*
1.2	Quality of outputs to date: (SLO 3) Improve diets as a nutritious, healthy food	What evidence exists to support the shift towards increasing legume intake in humans? Low lysine content is the limiting constraint in cereal-dominated diets relative to human amino acid balance, such as a maize-based diet in eastern and southern Africa. Legumes are superior sources of lysine, and increase the biological value of the combined protein. Legumes also have other important positive effects. (For example, Enhanced iron concentration in beans was shown to improve iron status in Mexican school children (Haas et al. 2010). Grain legumes exhibit low glycemic index thus reducing the risk of obesity and diabetes (Foster-Powell K. et al. 2002). Grain legume consumption also has positive effects on colon and breast cancer (Correa 1981; Hangen and Bennink 2003; Thompson et al. 2008) and cardiovascular disease (Kabagambe et al. 2005). Preliminary tests with HIV/AIDS victims fed grain legumes shows an increase in cell counts of CD4 cells, a primary element of the immune system (M. Bennink, personal communication).)
1.2	Quality of outputs to date: (SLO 4) Sustainably intensify farm production	Is there evidence of improved crops, or enhanced finances of smallholder farmers and the agricultural system from the ability of grain legumes to fix nitrogen in soils? (Through gradual release of nitrogen from decaying root biomass, grain legumes can improve overall nitrogen balance in farming systems as compared to chemical nitrogen-only strategies (Crews and Peoples 2005; Nyiraneza and Snapp 2007). Consequently, legumes help reduce fertilizer costs for cash-limited smallholders. Legumes also serve as a break to damaging weed and disease cycles, and extend the duration of vegetative cover thereby reducing soil erosion. Grain legumes further improve the capture, productive use and recycling of water and nutrients, such as end-of-season residual and fallow moisture. Use of their vegetative matter as fodder also enriches nitrogen-limited livestock diets, enhancing the sustainability potential of crop-livestock mixed farming systems. Moreover, as a synergistic complement to chemical nitrogen fertilizer, grain legumes reduce fossil fuel use and associated emissions of greenhouse gases that contribute to climate change.)

1.3	Productivity: Likelihood of success	Have adequate constraint analyses and lessons from ex post studies informed program design for enhancing the likelihood of impact? To what extent is the program progressing towards the four System Level Outcomes (SLO): Poverty, Food security, Improved diets and Sustainable intensified farm production? To what extent have planned outputs and outcomes been achieved or are likely to be achieved?
1.3	Productivity: Quantity of outputs re investment	Which do you consider to be the most cost-effective SLO? Why do you think this?
1.3	Productivity: Quantity of outputs re investment	Describe the impacts of changing from 5SC/8PL to 8FPs. What difference has this made to Grain Legumes productivity in terms of outputs? Are goals still clearly defined?
2. RELEVANCE		
2.1	Relevance: Fit for purpose	Does the program target an appropriate set of Intermediate Development Outcomes (IDOs) and do the activities (in the Grain Legumes Product Lines/Clusters of Activities) cover and/or make reasonable assumptions about the results of other actors' work for achievement of program objectives? What indications exist as to the comparative international reputation and quality of the science? Have constraints to outcomes and impacts been considered in the program design, for example through assessment of the assumptions and risks in reliance on policies, actions of national institutions, capacity and partnerships?
2.2	Relevance: Original objectives in terms of research approach	What are the linkages between pre-Grain Legumes goals and current outcomes? Do the impact pathways logically link the principal clusters of activities to the IDOs and are the IDO linked to the SLOs through plausible theories that take into account trade-offs between multiple objectives? How relevant are the outputs and achievements to date? What lessons have been learned and what recommendations could improve the relevance and scientific rigour of other programs?
2.3	Relevance: Composition of partners, institutes and countries involved.	How relevant are the stakeholders and program countries to the program? How relevant is the program to the stakeholders? Are the partnerships chosen and managed so as to maximize efficiency for results? Are such a mega-programs better than the sum of its parts---that is, could the same research have been done just as well or better if the four centres had worked independently? What are some outputs/outcomes that demonstrate positive synergy among the various partners?
3. IMPACT		
3.1	Impacts: Across scale	What is the potential for economic and social impacts, including potential to scale up or scale out the research investments? How does your work achieve impact in the wider community? Are there communities with whom you would like to work?

3.1	Impact: Potential	What types of research, approaches and mechanisms seem to have the greatest potential for impact? Conversely, what have the least potential for impact? What lessons can be learned for future investment? Are you restricted in what you can achieve by time, funds, administrative support, technical kit, quality of researchers, mentoring, or communications with other centres?
3.1	Impact: Benefits	What, overall, have been the successes and weaknesses of the program, both relevant to the original goals and any unanticipated benefits?
3.2	Capacity-building: Strategy	What is the strategy for capacity-building? Is it adequately resourced, implemented and reviewed?
3.2	Capacity-building: Implementation	What significant Grain Legumes capacity-building activities have occurred in the last 6 months/year? To whom were they targeted? Who initiated them? How are they evaluated? Was their impact monitored or reviewed?
3.2	Capacity-building: Examples	Can you share some specific examples of effective capacity-building?
3.2	Capacity-building: Scientific	What has been the effectiveness of scientific capacity-building activities undertaken? How have they enhanced collaborative potential?
4. GENDER		
4.1	Gender: Strategy	To what degree were gender dimensions considered, either implicitly or explicitly in the program? Has gender been adequately considered in research design in terms of relevance to, and effect on, women? What lessons have been learned; what recommendations would help future programs?
4.1	Gender: Resource allocation	How are resources and effort actively directed towards gender issues?
4.1	Gender: Impact	How adequately has gender been considered in the impact pathway analysis, in terms of the differential roles of women and men along the impact pathway, generating equitable benefits for both women and men and enhancing the overall likelihood enhancing the livelihoods of women and also the nutritional status of women and children? How has each product line contributed to increased income, food security, nutrition, environmental and resource conservation for resource-poor women (and men)?
4.1	Gender: Balance	How is gender balance achieved in delivering each program? Have women participated in demonstration or test farms, participating in varietal selection and managing production, as set out in the Grain Legumes proposal?

4.1	Gender: Sales performance aim	What gender-sensitive training and investments in post-harvest processing have developed to support the drive towards better sales performance for women? Is there evidence to support the sales performance aim that women will not only maintain their prominent role in managing grain legumes on farm, but will also increase their role in other links of the value chain?
4.1	Gender: Specific SLO1	Are processed products from these raw materials adding value and generating income-earning opportunities for poor people, especially women?
5. GOVERNANCE AND MANAGEMENT		
5.1	Governance: Planning	Were you or anyone from your organisation involved in the initial planning of Grain Legumes ? How were they involved? Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity?
5.1	Governance: Roles and responsibilities	How would you rate your understanding of the organisational structure into which your project fits? Are roles and responsibilities clearly defined at all levels?
5.1	Governance: Implementation	How well do you understand/have knowledge of the key questions addressed by the project/program you are working on? How clear is the pathway to implementation? Where strategic changes are made, such as the introduction of FPs, how are work plans revised and relaunched? To what other projects do you contribute and how is your time allocated (%)? To which themes/PLs do you contribute within the Grain Legumes –officially or goodwill? Do you have access to all the equipment and training? Is there anything you need?
5.1	Governance: Review	How much information do you receive about progress of other projects within your program? What evaluations have been undertaken and were findings shared? What follow-up action occurred to facilitate progress with regard to lessons learned? To what degree do you feel your views are taken into consideration when reporting project progress?
5.1	Governance: Management systems	To what extent have the reformed CGIAR organisational structures and processes increased (or decreased) efficiency and successful program implementation? Are the Grain Legumes institutional arrangements and management and governance mechanisms efficient and effective? Is the monitoring and evaluation system adequate and efficient for recording and enhancing Grain Legumes processes, progress, and achievements? What are the Human Resources policy and arrangements? How are they implemented? What performance monitoring tools are used? Are they effective?
5.1	Governance: Staff appraisal	What performance monitoring tools are used? Are they implemented by the Grain Legumes or its contributing institutions? Are they effective? Is there a formal staff appraisal procedure?
5.1	Governance:	What mechanisms exist for formal consultation and communication

	Staff consultation	with staff?
5.2	Consultation and communication: Processes	How much interaction/team-working is there with other projects in your program? To what extent do sub-centres gain from involvement with lead centres? How effective are communication processes with regard to the Grain Legumes ? Are reporting and networking functions clear?
5.2	Consultation and communication: Change	How are changes, such as the introduction of FPs, communicated?
5.2	Consultation and communication: Stakeholders	How effectively are consultation processes engaging with the relevant stakeholders? Are stakeholders clear about whom to contact?
5.2	Consultation and communication: Progress towards goals	How dynamic and effective are relationships between the various stakeholders in terms of achieving program outcomes/objectives?
5.2	Consultation and communication: Review	How are decision-making processes monitored and reviewed? What is the procedure for identifying relevant recipients and providing feedback?
5.3	Budgets and finance: Processes	What is the process for Budget planning, monitoring and review?
5.3	Budgets and finance: Allocation and Attraction	How are budgets allocated to outputs and outcomes? How does this impact on future actions? What is the use of core-type funding (Windows 1 and 2) for leveraging bilateral funding and alignment of bilateral projects within program strategy? What are the prospects for sustaining financing, for example, for long-term research programs and key partnerships?
5.3	Budgets and finance: Late disbursement	What is the impact of late and fickle disbursements?
5.3	Budgets and finance: Overheads and costs	If transaction costs are not monitored, how are they perceived by management, staff and funders?
5.3	Budgets and finance: Organisational response	How does Grain Legumes respond to budget issues? What is the organisational reaction?
5.4	Value added:	What value has been added by the program's design and implementation, management and commissioning processes? What

	Overall perception	lessons can be learned?
5.4	Value added: Implementation and specific roles	What value has been added by program organisation and/or delivery mechanisms? How effective have been the roles of program management in adding value? What lessons have been learned?
5.4	Value added: Limitations	What issues or constraints have arisen?
5.4	Value added: Successes and weaknesses	What, overall, have been the successes and weaknesses of the program, both relevant to the original goals and any unanticipated benefits?
6. PARTNERSHIP		
6.1	Partnerships: Strategy	Is there a partnership strategy and how is it implemented?
6.1	Partnerships: Involvement	To what extent are the partnerships relevant and cover the relevant partner groups to achieve program objectives? How is partner involvement managed? Is there a key database with data on contact information, records of communications? Have any partnerships been terminated, and how was this managed? Are records kept?
6.1	Partnerships: Budgets	How are partnership budgets set, allocated and managed?
6.1	Partnerships: Co-ordination	How effective and transparent are communications between the program and partners and between partners?
6.1	Partnerships: Effectiveness	To what extent/how have effective partnerships been built? To what extent are the partnerships relevant and cover the relevant partner groups to achieve program objectives?
6.1	Partnership: Interaction, collaboration and application	What has been the degree of interaction between scientists involved in the program and potential users of the scientific research emerging from the program? What steps are being taken to ensure that the outputs of the research may be effectively used or applied by policymakers and practitioners?
6.1	Partnerships: Growth	Which partners have grown successfully during the program? Which have been less successful? Why do you think this happened and what lessons can be learned?
6.1	Partnerships: Capacity-building	To what extent do capacity-building efforts address partners' needs? Does capacity-building target women as well as men adequately and their differential needs taken into account? To what extent are capacity issues taken into account in the impact pathway analysis? Are capacity-building efforts integrated with the research mandate and delivery of the Grain Legumes? Are the capacity-building efforts and incentives among partners adequate for enhancing the long-term sustainability of program effects? Are there

		demonstrable outputs and outcomes of capacity-building/synergy among the various partners?
6.2	Partnerships: Strengths	What have been the comparative roles and relative strengths of the partnerships established within Grain Legumes projects? Have the Grain Legumes research activities been adequately prioritised in line with resource availability and partner needs? What lessons learned and recommendations might help to enhance future programs?
7. QUALITY OF SCIENCE		
7.1	Quality of Science: Utilising technologies to increase fundamental understanding of the biology	What access is available to innovative technologies that allow for cutting-edge scientific advances? How does the research design, problem-setting and choice of approaches reflect high quality and up-to-date scientific thinking, state of art knowledge and innovation in all areas of research? Do citation indices indicate relevance/scientific esteem of research and published outputs? Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity?
7.2	Quality of outputs to date: Innovation	What approaches have been novel or innovative? How is academic quality monitored, managed and evaluated. What is the level of scholarship?
8. SUSTAINABILITY		
8.1	Sustainability: Outputs lead to sustainable outcomes and impacts	What impacts in terms of environmental sustainability, income generation and nutrition security are in place or likely to be achieved? How does the Grain Legumes expect benefits of its activities to be sustained and the Grain Legumes ends? How do partners prepare for this?
8.2	Sustainability: Grain Legumes value-added activities continue post Grain Legumes -funding	What is the quality and sustainability of partnerships that will lead to post-project continuation? What steps are put in place to ensure sustainable funding?

Appendix 3: Team Member Profiles

Our team comprises four persons, three co-Leaders and one Post-doctoral Fellow, with a total of 170 person days allocated for the Evaluation. The background and specific consolidating responsibilities of each team member are indicated below followed by some additional personal biographical information.

Person	Expertise	Responsibility
Professor Jim Dunwell	Geneticist and expert in applications of molecular biology in sustainable intensification of agriculture with industry and university appointments.	PL 4,5
Professor David Midmore	Experience in CG research and management and an expert on production systems, agronomy and resource use efficiencies.	PL1,2,8
Associate Professor Carol Wagstaff	Phytochemist and expert in improving the nutritional quality of crop plants by way of molecular and management interventions.	PL 3,6,7
Dr Shirley Smith	Seven years' experience in international policy and development studies with research focus on governance, stakeholder engagement in cross-sector consultation processes, and community representations.	All PLs

Professor Jim Dunwell:

Nationally he was a member of the Cabinet Office Strategy Unit panel on economic aspects of GM crops (2003), and a member of the Advisory Committee on Novel Foods and Processes, part of the Food Standards Agency (2001-2006). From 2001-2006, he was the ex officio ACNFP representative on the Advisory Committee on releases to the Environment (Defra), and he was then appointed to this committee in his own right in October 2006. He was a member of the Royal Society working group on biological approaches to crop plant production 2008-2009 (including workshop in Delhi), and was

asked by the UK Chief Scientist Sir John Beddington to prepare a review on Crop Biotechnology for the Government Foresight exercise (2010). He was also part of the group that prepared an update on GM for the present Chief Scientist Sir Mark Walport and the Council of Science and Technology in 2014. Amongst many review activities in Chair and member positions, for the BBSRC in the UK) he served on the panel for the joint BBSRC India Biotechnology Department (DBT) programme, Delhi 2014.

Internationally he was a member of the panel reviewing projects for the Flemish government (2004) and the review team for the joint Swiss Government/India Biotechnology Department programme in biotechnology. He chaired of the review of GM technology programme for the Malaysia Palm Oil Board (2006) and has reviewed project grants for government organisations in many countries including the USA, Singapore, South Africa, Denmark, and Holland. He spoke at workshops in Ghana, Nigeria, Uganda, and Tanzania, organised by Biosciences for Agriculture in Africa (B4FA) in 2013/14.

Professor David Midmore:

His initial research undertaken with CIMMYT in Mexico in the mid-70's led to the development of wheat as a true tropical crop (in the sense that it can now be cultivated in the lowlands of the tropics), an achievement that he replicated with the tropical potato while at CIP in the 1980's.

He worked with the private sugar industry in the Caribbean, in Taiwan at the Asian Vegetable Research and Development Centre in the early 1990's and since 1995 he holds an appointment as Foundation Professor of Plant Science at CQ University. His extensive experience in tropical horticulture led to the invitation to write for CABI on the subjects of 'The principles of tropical horticulture' and 'Asian vegetables'. He has an holistic grasp of the issues facing the future of global agriculture and horticulture, and his opinions and input are sought widely, including by the DFID, USAID, ACIAR, USDA and the CGIAR where he has undertaken Programme and Consortium reviews. He reviews regularly proposed and ongoing projects for a number of national institutions/agencies [e.g. Finland, Singapore, Qatar]. His research has led to impact in the potato, bamboo and vegetable industries in Asian and in Australia.

Since early 2010 he has been based at the School of Agriculture, Policy and Development at the University of Reading (UK) as a Visiting Professor, commuting two to four times annually to Australia.

Associate Professor Carol Wagstaff:

As a member of staff with the University of Reading for the past 8 years, and prior to that with both industry and university positions, she has a good grasp of how to ensure that research leads into impact. Her main aims are to improve the quality of food, including the nutritional value, appearance, flavour and shelf life, as well as helping consumers make healthy dietary choices. Working at the interface between plants and humans she investigates which phytochemicals and crop matrix benefit the consumer,

in particular focusing on gut health. She also has a practical background in resource allocation in crops and yield improvement.

She has been an advisor to the FoodPlus Programme at Crops for the Future Research Centre, Malaysia, a Strategic Advisor to the Produce Quality Group, East Malling Research, UK, the Conference Chair for Eucarpia Leafy Vegetables 2015, Spain, and an Advisory Board Member for Journal of Experimental Botany. Recently she has developed formal connection and funding through the UK Knowledge Transfer Programme, which links industry with universities to fast-track uptake of research outcomes.

Dr Shirley Smith:

Her doctoral studies completed 2012 explored the relationships and linkages between government, mining company and civil society stakeholders using the framework of corporate social responsibility within the context of the Extractive Industries Transparency Initiative. She focused on the impact of governance systems on grass roots representation and how representatives gain authority for their actions in multi-stakeholder groups.

Advisor to NGO in Madagascar, *ad hoc* 2006-2013: Research and project design to support funding applications. Health and Safety Consultant: Developed risk based approach to projects for international volunteers working with rural communities as well as practical assistance with project delivery.

Health and Safety Manager, British Broadcasting Corporation (BBC), London, UK, 1990-2006: *Occupational Health and Safety (H&S) System Development and Advisory Team Leadership.* She managed multiple projects delivering strategic management tools to aid and monitor H&S implementation. Accountable for the delivery of cost effective and consistent support to programme makers and news-gatherers enabling them to be innovative and creative whilst operating within a healthy, safe and secure environment.

Appendix 4: List of persons consulted in the inception phase

Includes some members of the Research Management Committee, the DGs of the centres and sampled members of the other governance committees. Individual researchers consulted during site visits as will their partners in NARs and intended beneficiaries. Names with an '*' indicate communication via email.

Name	Affiliation	Designation	In person	As group	Skype/ phone
Director General					
David Bergvinson	ICRISAT	DG		X	
Ruben Echeverria	CIAT	DG		X	
Mahmoud Solh	ICARDA	DG		X	
Management Entity and Research Management Committee Members					
Noel Ellis	ICRISAT	Grain Legumes Director	X	X	X
G.G. Koppa	ICRISAT	Grain Legumes Senior Program Manager			X
Product Line Coordinators and Research Management Committee Members					
Steve Beebe	CIAT	PL1 - Drought & low-P beans, cowpeas & soybeans			X
Michel Ghanem	ICARDA	PL2 - Heat tolerant chickpea, bean, faba bean & soybean	X		X
Patrick Okori*	ICRISAT	PL3 - Drought tolerant, aflatoxin-free groundnut			
S.K. Chaturvedi*	IIPR	PL4 - BNF chickpea, bean, faba bean & soybean			
Manuele Tamo	IITA	PL5 - Insect-smart chickpea, cowpea & pigeonpea	X		X
Shiv Agrawal	ICARDA	PL6 - Extra-early chickpea & lentiL	X		
Pooran Gaur	ICRISAT	PL7 - Herbicide-tolerant chickpea, faba bean & lentil			X
Rajeev Varshney*	ICRISAT	PL8 - Hybrid pigeonpea			
Flagship Project Coordinators and Research Management Committee Members					
Vincent Vadez*	ICRISAT	FP1 Managing productivity			
P. Janila*	ICRISAT	FP3 Trait deployment			

Mercy Lunghoa*	CIAT	FP4 Facilitating legume seed and technology delivery systems	
Zewdie Bishaw	ICARDA	FP4 Enhancing post-harvest processing and market opportunities	
Enid Katungi	CIAT	FP6 Knowledge, impacts, priorities, and gender organisation	
Esther Njuguna-Mungai	ICRISAT	FP8 Management	
Steering Committee			
Flavio Breseghello*	EMBRAPA	Director General of Embrapa Rice and Beans	
Peter Carberry*	ICRISAT	DDG	
Jeff Ehlers*	BMGF	Steering Committee Member	
Other Research Management Committee Members			
David Hoisington*	Feed the Future Innovation Lab	Mycotoxin Innovation Lab	
Irvin Widders*	Feed the Future Innovation Lab	Collaborative Research on Grain Legumes	
Others			
Various Field Staff	ICARDA Morocco		X
Various Field Staff	IITA/INRAB Benin		X
Ken Giller*	N2Africa Wageningen		
Prof. Dr. Ir. Jean T. Claude Codjia	University of Ketou, Benin	Vice Chancellor	X
Lionel Guezodje	FUPRO-Benin	President	X
Rufin Godjo	FUPRO-Benin	Executive Director	x
Joe Tohme	CIAT	Geneticist	x

Richard Thomas	ICARDA, Amman	Head of Dryland Systems
Shoba Sivasankar	ICRISAT	Director, CGIAR Research Program on Dryland Cereals
Enid Katungi	CIAT	Uganda

Appendix 5: Projects to be sampled

Projects will be sampled by output target, and these will be selected to represent a diversity of disciplines. The relationship between W1/W2 funded activities and W3/Bilateral funded projects will be investigated for a range of project scales. Projects and activities discussed in the Steering Committee will also be a focus of attention.

These are outlined in Section 5.2.

Appendix 6: IDOs, targets and assumptions

IDO1 Food Security: Improved and stable access to grain legumes by urban and rural poor from IDO Outcomes 290913

• An additional 1.6 million tons of common beans are available annually in Latin America, and 1.3 million tons in Africa, derived in part from an additional 500,000 hectares in heat prone areas, and an additional 500,000 hectares of climbing beans

• At least 10% increase in cowpea production resulting in higher supply of grains to the market and ultimately consumers

• At least 550,000 ha area in new niches brought into cultivation of chickpea, faba bean, lentil and bean by growing heat tolerant varieties

• At least 15% increase in groundnut supply at household level in target areas in Malawi, Mozambique, Tanzania and Uganda and 10-15% in Nigeria, Mali, Senegal and Niger

• Decrease in grain legume price volatility/variability by at least 3-5% in the target regions in India, Malawi, Mozambique, Tanzania, Uganda, Nigeria, Mali, Senegal and Niger; and 2% in Egypt, Ethiopia, Morocco, Syria, Turkey and Iran

• About 1 million households growing an additional crop of short-duration chickpea/lentil in rice fallows and rice-rice systems

• Decline in real price of pigeonpea by at least 10% in target regions

IDO2 Income: Increased and more equitable income from grain legumes by low income value chain actors, especially women

• Income from common bean sales increases by at least USD 250 million in Latin America and USD 300 million in Africa

• 10-15% increase in income of 1 million households from growing drought and low-P tolerant cowpea varieties

• 15-20% increase in income for at least 2.5 million households, of which 30% income earned by women, by growing heat tolerant varieties of chickpea, faba bean and lentil

• 10-15% increase in income from groundnut for 1 million households across India and Vietnam

• 10-20% reduction in labour requirement for women by cultivating short duration improved groundnut in India, Vietnam, Malawi, Mozambique, Tanzania and Uganda, Burkina Faso, Ghana, Mali, Senegal, Nigeria and Niger

• 10-20% increase in groundnut export due to reduced aflatoxin contamination in India, Vietnam; 15-20% in Malawi, Mozambique, Tanzania and Uganda; and up to 10% in Burkina Faso, Ghana, in Nigeria, Mali, Senegal and Niger

• 10% increase in income from groundnut in 150,000 households in Burkina Faso, Ghana, Nigeria, Senegal, Mali; and 15-20% increase in income from groundnut in 200,000 households in Malawi, Mozambique, Tanzania, Uganda; of which at least 50% earned by women

• 15-20% increase in income from cultivation of short-duration chickpea and lentil varieties to about 1 million smallholder families, especially women-headed households

• Chickpea, faba bean and lentil harvested mechanically in 2 million ha with 15-20% increase in income in target regions due to reduction in production costs, and 20-25% reduction in labour requirements of farm women involved in chickpea cultivation

IDO3 Nutrition & Health: Increased consumption of healthy grain legumes and products by the poor for a more balanced and nutritious diet, especially among nutritionally vulnerable women and children

• 10-15% increase in consumption of chickpea and faba bean, 15% of bean in Africa and 40% in Latin America, and 15-20% of lentil in target areas

• 10% higher consumption of groundnut containing low aflatoxin particularly by women and children in India, Vietnam, Malawi, Mozambique, Tanzania, Uganda, Burkina Faso, Ghana, Nigeria, Mali, Senegal and Niger

• 20% higher consumption of lentil containing high iron and zinc content particularly by women and children in India, Bangladesh, Nepal and Ethiopia

• 20% increase in consumption of pigeonpea in poor rural households in India, and 10% in Tanzania, Kenya, Malawi and Uganda, especially by women and children

IDO4 Productivity: Improved productivity of farming systems, especially among smallholder farmers

• Yields of common bean increase at least 40% among adopters in Latin America and Africa

• Drought tolerant cowpea varieties with 15-20% increase in yield adopted by 10-15% of farmers in target countries and planted in 1.0 million hectares; low-P tolerant cowpea varieties cover at least 500,000 ha in low soil fertility areas of Burkina Faso, Mali, Mozambique, Niger, Nigeria, Senegal and Tanzania.

• Heat tolerant varieties of chickpea, faba bean, lentil and bean cultivated in 1.5 million hectares with 20- 25% increase in yield in target regions

• Short-duration chickpea and lentil varieties grown in 500,000 ha in rice-fallows and new niches, improving the cropping system productivity by 20-25% in target regions of South Asia

• Adoption of drought tolerant groundnut cultivars provides 10-15% increase in yield in 500,000 ha in India and Vietnam; 200,000 ha in Tanzania, Burkina Faso, Ghana, Nigeria, Mali, Niger, and Senegal; 150,000 ha in Malawi; 100,000 ha in Uganda and Mozambique

• Adoption of drought tolerant soybean cultivars will increase grain yield by 15-30% in 50,000 ha in Malawi, 10,000 ha in Mozambique, 15,000 ha in Zambia and 100,000 ha in Nigeria

• Adoption of soybean varieties with enhanced biological nitrogen fixation will provide 20-30% increases in grain and biomass yields and add at least 20 kg nitrogen per hectare to soil

• Hybrid pigeonpea cultivated on 500,000 ha in target regions in India with an average increase of 20-25% productivity, with an increase in soil organic matter content by 0.2-0.3%

• 15-20% increase in pigeonpea yields in 200,000 ha in Tanzania, Kenya, Malawi and Uganda

IDO5 Environment: Minimised adverse environmental effects of increased production and intensification of grain legumes

• An additional 25,000 metric tons of nitrogen from climbing beans, and 25,000 metric tons from improved bush beans

• Cultivation of short-duration foliar diseases resistant groundnut varieties reduces pesticide use by 20-25% in target groundnut producing areas, minimising environmental contamination by pesticide residues by at least 15%

• Reduction in pesticide use in chickpea and pigeonpea by at least 25% in target regions of Asia

• Reduction of yield losses by 35% in cowpea due to the adoption of IPM innovations based on host plant resistance (including Bt-transgenics), biological control and bio-pesticides, thereby reducing the use of synthetic pesticides by at least 25%

• Increase soil fertility and organic matter content by 0.1-0.2% in the target groundnut areas in SSEA, ESA, WCA.