



Inception Report

Oct 2014

Evaluation of the
CGIAR Research Program on
MAIZE



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Independent
Evaluation
Arrangement

2. CONTEXT

2.1. External program context

Maize is one of the most important commodities for the poor in developing countries. It is produced on nearly 100 million hectares in 125 developing countries, of which two thirds are low or middle income. Together with wheat and rice, maize provides more than 30% of the food calories of more than 4.5 billion people in 94 developing countries. More than 900 million poor consumers and nearly one third of all malnourished children have maize as their preferred staple food.

More than 30 million farm families have maize as their dominant food crop. The demand for maize is increasing rapidly and is expected to double by 2050. By 2025 maize is projected to become the crop with the greatest production globally in the developing world. At current levels of productivity growth, demand will fall short of demand and food prices will rise. Major efforts have to be taken to accelerate yield growth of maize, increase incomes from maize based farming systems and to stabilise food prices."

Research, development and delivery of maize varieties adapted to the agro-environmental and improved production systems in developing countries are the backbone and foundation for sustainable and affordable access to staple food. The MAIZE CRP goals are targeting this deployment of improved maize varieties. This effort, however, cannot be achieved alone by the MAIZE CRP program. There are key stakeholders and partners that should support and enable MAIZE CRP mandate. Furthermore, the scenario around it is evolving rapidly with the seed industry developing and delivering maize varieties in target areas and non-private institutions (e.g., NGOs, National R&D Programs) playing increasing role in regulatory and upstream research.

The MAIZE CRP program can (must) play a significant role in articulating common purpose efforts across institutions to overcome increasing challenges in maize production, especially abiotic (e.g., drought and heat, soil fertility) and biotic stress (e.g., new diseases such as Maize Lethal Necrosis MLN, crop protection). The implication of both local emerging and multinational seed industry in joint efforts with the MAIZE CRP would guarantee mid and long term delivery of maize varieties and bring up economy of scale to developing countries. In addition, the structuring of a solid portfolio of maize research together with international research organizations (e.g., Universities, Foundations) remains fundamental to innovate and provide modern breeding technologies to the developing world.

2.2. CGIAR reform context

The CGIAR reform was set in motion in 2008. The CGIAR donors, in a Joint Declaration agreed on the following main principles for the reform:

- To harmonize our approach to funding and implementing international agricultural research for development through the CGIAR Fund (the Fund) The Strategy and Results Framework and the consortium established by the Centers (the Consortium), respectively;
- To manage for results in accordance with the agreed Strategy and Results Framework (SRF) and the Mega Programs that derive from the SRF;
- To ensure effective governance and efficient operations in the provision and use of our resources; and

- To collaborate and partner with and among funders, implementers, and users of SRF research, as well as other external partners supporting the SRF.

The SRF was approved in 2011 at a time when the Center-led CRPs had already been developed and two of them (on rice and climate change) approved. Thus the current CRPs did not derive from the SRF although the SRF is intended to provide the broad rationale and context for the development, implementation and evaluation of the CRPs. An updated SRF is due by the end of 2014.

In the approval process the CRPs were both developed and appraised following a set of common criteria that addressed the (i) strategic program coherence; (ii) focus on delivering outcomes and impacts towards the SLOs; (iii) quality of science; (iv), management of partnerships, including both research and development partners; (v) efficiency of program management; and (vi) accountability, sound financial planning and efficiency of governance.

Under Consortium Office coordination, Intermediate Development Outcomes have been developed since 2012 both at the CGIAR System level and at the CRP level for linking the CGIAR research to the SLOs and for facilitating priority setting, again both at the System and at the CRP levels. Simultaneously, CRPs have been instructed to restructure the program by Flagship Projects, and cluster of activities within the FPs, each FP designed to contribute to one or more CRP IDOs through an impact pathway and to the SLOs through a Theory of Change. The CRPs were instructed to define the IDOs also in terms of clear target domains (agroecologies and end user groups) and measurable results at the outcomes level.⁵

The internal CGIAR context is also important for understanding the MAIZE funding. The funding sources available to CRPs are explained in Box 1.

Figure 1: Major Sources of Funding in the CGIAR System

To maximize coordination and harmonization of funding, donors to CGIAR are strongly encouraged to channel their resources through the CGIAR Fund. Donors to the Fund may designate their contributions to one or more of three funding “windows”:

- Contributions to **Window 1** (W1) are the least restricted, leaving to the Fund Council how these funds are allocated to CGIAR Research Programs, used to pay system costs or otherwise applied to achieving the CGIAR mission.
- Contributions to **Window 2** (W2) are designated by Fund donors to specific CGIAR Research Programs.
- Contributions to **Window 3** (W3) are allocated by Fund donors to specific CGIAR Centers.

Participating Centers also mobilize financial resources for specific activities directly from donors as **bilateral funding** and negotiate agreements with their respective donors for the use of these resources.

Source: CGIAR website: <http://www.cgiar.org/who-we-are/cgiar-fund/>

The CGIAR reform also involves shifting to central annual reporting to the Consortium, which applies to all sources of funding. This reporting has not yet replaced the requirement of reporting to

⁵ https://library.cgiar.org/bitstream/handle/10947/2895/2014%20-%20SRF%20Management%20Update_Final_2013_12_20.pdf?sequence=1

bilateral donors, often following donor-specific requirement. Given that bilateral funding has remained a major source of funding, the reporting burden remains currently considerable.

The CRPs were initially approved for a three-year funding period in parallel with agreement on the first SRF. As the evaluation of MAIZE is beginning, an updated SRF is being developed by the Consortium Office to include System level priorities for research funding. Inputs into the reform are expected from a CGIAR Mid-Term Review due by the end of 2014. In parallel, MAIZE has completed its 3rd year of operation and a six month extension was approved based on the submission of the Program of Work and Budget 2014.⁶ MAIZE among all CRPs has also submitted a proposal for extension funding for 2015-16. Finally, a process for the 2nd call of CRPs is being prepared to be launched in 2015 to follow a two-stage approach, with pre-proposals to be submitted in early 2015 and full-proposals in 2016.

The CGIAR is moving rapidly in its reform and consequently the CRPs are engaged in making considerable changes in the programs. This has implications for the evaluation, which is taking place in a changing context and yet is expected to inform the direction of MAIZE.

2.3. MAIZE program

MAIZE objectives, structure and activities

The MAIZE Strategy which was conceived as a collaborative effort for international maize research was outlined in the Proposal Document (June 2011) and aims to:

“double productivity and significantly increase the incomes and livelihood opportunities from more productive, resilient and sustainable maize-based farming systems on essentially the same land area—while contending with climate change and increasing costs of fertilizer, water, and labor.”

Two target groups were defined: - Stress-prone smallholders with poor market access; and Market-oriented, technology- constrained smallholders in more benign environments. The following impact targets were set for the new strategy of international maize research, assuming engagement of farming communities, international and national researchers, policy makers, the private sector, and many other development partners:

1. Boost maize productivity by at least an additional 20% by 2020 and 50% by 2050 (compared to current trends) in 60 major maize-producing countries of the developing world, thus helping ensure accessible and stable prices for the over 900 million poor maize consumers.
2. Sustainably intensify maize production and ensure stabilization of the total maize area at about 120 million hectares in developing countries, thus avoiding environmental damage.
3. Reduce the frequency of production shortfalls and price volatility in areas and countries where the probability of crop failure in maize-based farming systems is greater than 15%.
4. Diversify maize-based farming systems and enhance their productivity and sustainability, dealing specifically with the systems with the highest poverty concentrations, where over 660 million maize-dependent poor and about 62 million malnourished children live.
5. Ensure that higher rates of maize yield growth are sustained beyond 2020 in the face of climate change impacts, worsening water scarcity, and rising fertilizer prices.

⁶ See CGIAR 11th Fund Council Meeting Summary, May 7-8, 2014

6. Increase opportunities for diverse market participation, including locally emerging companies, women and young adults, and give developing countries access to know-how and technologies comparable to those available in high-income countries.

The Strategy was initially built around a set of nine Strategic Initiatives⁷ and a cross-cutting theme on capacity building. For 2014 MAIZE has been re-organizing around Flagship Projects (FP) and clusters of activities. It is in the process of defining impact pathways and measurable targets for the FPs and IDOs. The transition from SIs to FPs and the IDOs addressed by the FPs are shown in Table 1.

Table 1: Current Flagship structure and IDOs

FLAGSHIP	IDO	Former SI
Flagship 1-Sustainable intensification and income opportunities for the poor	IDO1: Productivity IDO2: Food security IDO4: Income IDO5: Gender IDO6&7: Capacity to innovate and adapt IDO9: Environment IDO11: Climate	SI 2 and SI 3
Flagship 2- Novel tools, technologies and traits for improving genetic gains and breeding efficiency	IDO1: Productivity IDO2: Food security IDO3: Nutrition	SI 4, SI 8, SI 9
Flagship 3 - Stress Resilient and nutritious maize	IDO4: Income IDO5: Gender	SI 4, SI 7
Flagship 4- Aligning with strengthening maize seed systems for effective product delivery.	IDO9: Environment IDO11: Climate	SI 5
Flagship 5-Inclusive and profitable maize futures	IDO2: Food security IDO4: Income	SI 6 and SI 1

Source: Evaluation team, based on POWB 2014.

The project alignment by FP has been nearly completed. Among the SIs, the largest by far is SI 4 on Stress tolerant maize, which will be go mostly to FP 3 with some activities on novel tools to FP 2. It includes mostly bilateral projects, among them very large projects like Drought Tolerant Maize for Africa – Phase III (budget of USD 24 million), Water Efficient Maize for Africa (WEMA) Phase I and II (budget of USD 6.5 million and USD 10.5 million), Improved Maize for African Soils (IMAS) (budget of USD 14.5 million), and Achieving sustainable Striga control for poor farmers in Africa (Budget of USD 3.4 million). The second largest SI has been SI 2, which will become part of FP 1. It includes SIMLESA (Sustainable intensification of maize-legume cropping systems for food security in eastern and southern Africa) with a budget of more than USD 16 million, MasAgro conservation agriculture component (USD 7.7 million), Farm Mechanization & Conservation Agriculture for Sustainable Intensification (FACASI) with almost USD 5 million and several components of the large scale CSISA (Cereal Systems Initiative for South Asia) project which is shared with WHEAT (MAIZE has a minor share). Also SI 3 on precision agriculture will be integrated in this FP. SI 5 that will become part of FP

⁷ SI 1 Socioeconomics and policies for maize futures, SI 2 Sustainable intensification and income opportunities for the poor, SI 3 Smallholder precision agriculture, SI 4 Stress tolerant maize for the poorest, SI 5 Towards doubling maize productivity, SI 6 Integrated postharvest management, SI 7 Nutritious maize, SI 8 Seeds of discovery, SI 9 New tools and methods for NARS and SMEs

4 includes the MasAgro component, International Strategy for Increased Maize Yields, which makes up 90% of that Flagship Project.

A **MAIZE gender strategy**, adopted in 2013, outlines the process and approach to integrate gender aspects in the program and conduct strategic gender research. Gender activities accelerated in 2013 (with expenditure of USD 7 million) when a UNDP aligned DAX indicator was introduced to assess gender related expenditures.

MAIZE funding and expenditures

Next to a fully funded MAIZE scenario estimated at USD 237.8 million over three years, the 2011 MAIZE proposal included also two more conservative funding scenarios for likely available funding which were about 70% of what was considered full funding for the program activities proposed (USD 238 million). The budget which was approved per the Programme Implementation Agreement (PIA) between the Consortium and CIMMYT was USD 170.2 million for the first three years of operations, with around 26% supposed to be funded through W1/2. The difference to the full funding was defined as “expanded” component.

In the 2013 Annual Reports, MAIZE began to report part of the CRP expenditures as “supplementary”, and thus outside of the CRP. This was based on the question by the Consortium why MAIZE was spending more W3 and bilateral funding than approved by the FUND Council. MAIZE analyzed its budget situation and explained to the Consortium on 8 March 2014 that funding increased for development type funding that typically supports scale-out and accelerates the impact pathway of a CRP. This type of funding was not envisioned in the original proposal. They were included in the CRP reporting because donors themselves aligned such funding with the CRP. The budget used for strategic CRP funding on the other hand was indeed very much aligned with the original MAIZE proposal (see Table x). MAIZE proposed to label such scale-out funding affiliated by donors with the CRP as “CRP supplementary.”

Table 2: Financial summary for W3&bilateral funding, 2011-2014

MAIZE	2011	2012	2013	2014	2014	Total	Total
	Jul - Dec	Jan - Dec	Jan - Dec	Jan - Jun	Jul - Dec	Phase I	Phase I + 6 months
A. Budget as per PIA (Scenario 2)							
W3 & Bilateral	19,892	40,778	42,816	21,930		125,416	
Total	19,892	40,778	42,816	21,930		125,416	
B. 2011-2013 Actuals & 2014 Budget	Actual	Actual	Actual	Budget	Budget		
W3 & Bilateral: CRP Strategic	22,601	41,864	45,432	23,967	23,967	133,864	157,831
New Research: Maize Lethal Necrotic Virus			656	398	398	1,054	1,452
Total	22,601	41,864	46,088	24,365	24,365	134,918	159,283
C. W3 & Bilateral: CRP supplementary		22,201 ¹	25,357	13,349	13,349	38,706	74,255

¹Retroapplied based on mapping of 2013 accounts

Source: CRP management.

For Phase I (July 2011 – June 2014), around 14% of the W1&W2 funding were used for CRP Management, 56% for research at CIMMYT, 12% for research at IITA and 18% for research by partners, very much aligned with the CRP proposal and the geographic focus of CIMMYT and IITA operations (CIMMYT in Latin America, Asia and eastern and southern Africa; IITA in West and Central Africa).

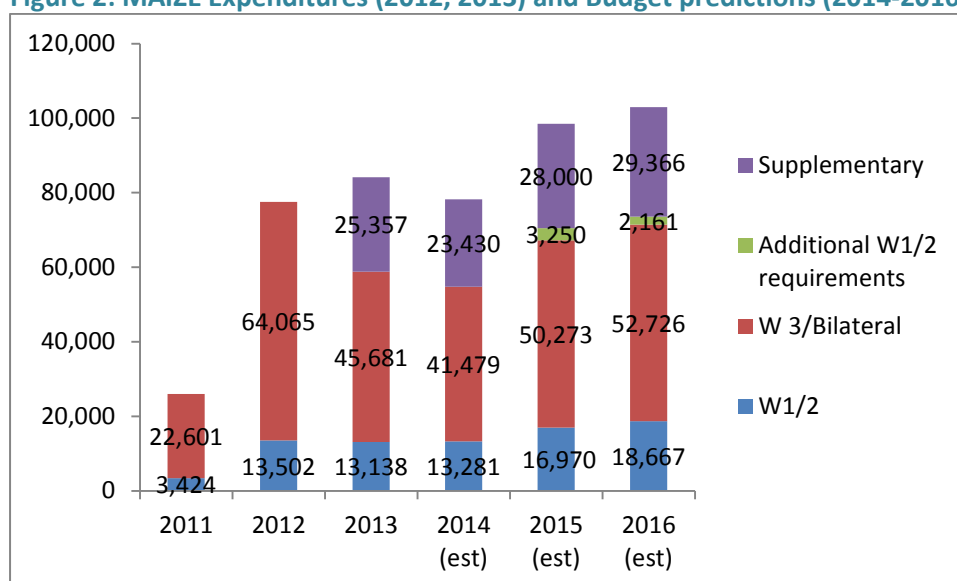
Table 3: Actual W1&W2 expenses for MAIZE, as reported to the Consortium and Budget approved by the MAIZE Management Committee for completing Phase I of MAIZE (Jul 2011 – Jun 2014).

Actuals	Expenses 2011	Expenses 2012	Expenses 2013	Budget 2014	Total Phase I	Percentage 2012 - 2014
CRP Management	493	1,713	1,872	1,124	5,202	14%
CIMMYT	2,225	8,546	6,655	3,832	21,259	56%
IITA	682	1,578	1,520	860	4,640	12%
Partners	24	1,664	3,091	1,894	6,674	18%
Total	3,424	13,502	13,138	7,710	37,774	86%

Source: CRP management.

Figure 1 shows expenditures for 2012 to 2013, budget estimates (in orange) for 2014 (from POWB) and 2015-2016 (from Extension Proposal) per funding source. In the 2015-16 extension proposal, the total MAIZE budget is projected to reach USD 100 million by 2016, including supplementary funding which MAIZE continues to separate from the so-called “CRP strategic funding”.

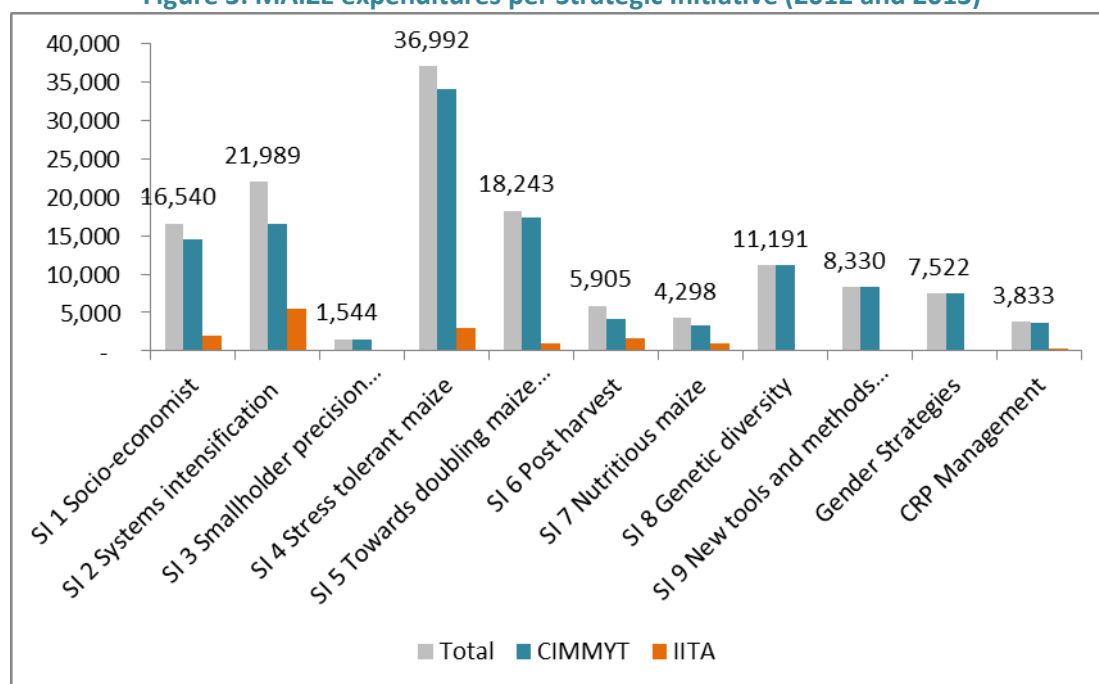
Figure 2: MAIZE Expenditures (2012, 2013) and Budget predictions (2014-2016) in USD thousands



Source: Financial Reports 2012 and 2013 (L101), POWB 2014, Extension Proposal 2015-2016.

Figure 3 shows the expenditures for 2012 and 2013 per Strategic Initiative, for both CIMMYT and IITA.⁸

Figure 3: MAIZE expenditures per Strategic Initiative (2012 and 2013)



Source: MAIZE Annual Reports 2012 and 2013.

The level of W1/2 funding was established on basis of unrestricted core funding of the research in 2010 with an estimated annual increase of 5%. W1 complements W2 within these limits, which has restricted W1/2 growth beyond the initial trajectory. In its first 2 ½ years of operation (mid-2011-2013) MAIZE received the lowest level of W1/2 funding (as proportion of total expenditures), 19% on average. The criteria by which W1 funds have been allocated have been questioned by MAIZE management. The two funding windows are coupled, which means that successful resource mobilization to W2 leads to lower level of W1. Thus, there seems to be little incentive for the CRP to mobilize W2.

The largest donors (based on MAIZE Financial Reports) for the MAIZE program are shown in Table 2 below. BMGF through various projects and SAGARPA through MasAgro are by far the most important bilateral donors for MAIZE. If the CGIAR Fund (and its contribution by Window 1 and 2) would be seen as an individual donor, it would still be smaller than those two donors.

Table 4: Largest MAIZE donors

DONOR	2012	2013	Comments (main activities)
AATF	1,969	-	Pass through money from Water Efficient Maize for Africa (WEMA) leader: The African Agricultural Technology Foundation, actually funded by BMGF, in 2013, CIMMYT received money directly from BMGF

⁸ In 2011 only overall expenditures were reported, but they were only at around a third of the expenditures in 2012 and 2013 and proportional spending along SI is likely not have been effected.

			for WEMA
ACIAR	2,416	2,444	SIMLESA and FACASI
AFDB	1,087	1,840	Support to Agricultural Research for Development on Strategic Commodities in Africa (SARD-SC) project which is led by IITA
BMGF	17,543	14,873	Drought Tolerant Maize for Africa – Phase III, Improved Maize for African Soils (IMAS), Water Efficient Maize for Africa- Phase II, Achieving sustainable Striga control for poor farmers in Africa, DH Maize: A Doubled Haploid facility for strengthening maize breeding programs in Africa
CIDA	1,645	-	Nutritious maize for Ethiopia
Harvest Plus	1,381	-	Only in 2012, since 2013 it is part of CRP on A4NH
IFAD	2,791	1,548	EC/IFAD CGIAR Programme
SAGARPA	22,678	12,589	MasAGro
SDC	3,876	2,549	Effective Grain Storage for better livelihoods of African Farmers- Phase II, New Seed Initiative for Maize in Southern Africa (NSIMA) - Phase III, The Hill Maize Research Project (HMRP) - Phase IV
SFSA	1,487	1,757	Developing maize resistant to stem borer and storage insect pests for Eastern and Southern Africa- IRMA III Conventional, Affordable, Accessible, Asian (Triple A) drought tolerant maize
USAID	4,224	2,955	CSISA components which are in MAIZE, co-funder of several projects that BMGF fun, also funds IITA significantly

Source: MAIZE Annual Reports 2012 and 2013.

MAIZE project portfolio

In 2013, CIMMYT reported 107 bilateral/W3 funded projects and IITA reported 9 bilateral/W3 funded projects within MAIZE. The current database of projects includes a total of 220 different bilateral and W3 funded projects and W1/2 activities (related W1/2 activities spread over several years have been consolidated for the purpose of establishing the project portfolio).⁹ It includes 22 IITA projects currently mapped to the CRP. Since the database only refers to total (often multiyear) budgets and since the grant duration vary, any real comparison would be misleading.

Twelve W1/2 activities were included from the Work Plan 2014 without defined budget and therefore the total portfolio budget is slightly higher than USD 216.5 million.

	MAIZE Budget (in USD millions)					
	2013 (1)			Accumulated (2011-2013)		
	Total	CIMMYT	IITA	Total	CIMMYT	IITA
W1/W2 activities	14	12.51	1.50	34	30.11	3.88
W3 Projects	20	18.47	1.93	34	28.64	5.23
Bilateral Projects	32	26.88	4.96	117	105.89	11.05
Total	66.26	57.87	8.39	184.80	164.64	20.16

(1) It does not includes Supplementary Projects

Source: CRP management.

⁹ Ten of the IITA activities which were initially included have been re-mapped

Based on the project database, when looking at the different Flagships, the by far largest one is Flagship 3 on stress resilient and nutritious maize with more than 40% of total budget of which almost all of it comes from bilateral funding. The second largest Flagship is FP 1 on sustainable intensification of maize-based farming systems which is mostly the same as the previous SI 2 and includes MasAgro components on sustainable intensification, SIMLESA and a share of CSISA.

Most of MAIZE activities target sub-Saharan Africa with 72% of the total project budget allocated to African countries or regional African projects and activities. IITA covers West and Central Africa and CIMMYT mostly Eastern and Southern Africa (with regional activities like SIMLESA and Improved maize for African soils, IMAS). Of the 8% project funding marked for Latin America, the SAGARPA funded MasAgro project (shared with WHEAT) accounts for 90%. Ten percent of project funding is allocated to Asia including: Heat tolerant maize for Asia project, ACIAR-Climate Resilient systems in Nepal and the CSISA program in Bangladesh, India and Nepal as well as a Hill maize research project in Nepal. The remaining 10% is funding of global projects.

In 2013, the countries which accounted for most project activity in terms of expenditure, although several of it with regional focus, were:

- Kenya (IFAD contribution, DTMA, WEMA II, IRMA III, ACIAR-Adoption Pathways in eastern and southern Africa, SDC Effective Grain Storage)
- India (CSISA, HTMA, GTZ-Abiotic stress tolerant maize for increasing income and food security among the poor in Asia, Syngenta-Affordable, Accessible, Asian ('Triple A') Drought Tolerant Maize)
- Ethiopia (FACASI, Nutritious Maize for Ethiopia, IFAD CASFESA)
- Zimbabwe (ILRI/ACIAR Crop and Livestock, NSIMA III, Zambia maize-legume systems)

Some projects also contribute to other CRPs and are not accounted for 100% in the project portfolio. For example, IITA reports 50% of the large project "Achieving sustainable Striga control for poor farmers in Africa" and 25% of the Development of Strategic Crops Africa" (SARD-DC) project outside of MAIZE. Shares of the CIMMYT projects CSISA and MasAgro Take it to the farmer are also reported under WHEAT; to mention two examples. Table 5 below shows some of the large projects which contribute to other CRPs than MAIZE.

Table 5: Major shared projects

Project Title	BUDGET (USD million)	% MAIZE	Comment
CSISA II and related projects	~ 21	Ave 31%	CSISA shared with WHEAT, GRISP and CSISA
IRRI/USAID-CSISA expansion in Bangladesh	~2.5	Ave 31%	Shared with WHEAT, GRISP and CSISA
MASAGRO, several components	~20	Ave 62%	Shared with WHEAT; Take it to the Farmer has larger MAIZE share, Seeds of discovery is equally split
Achieving sustainable Striga control for poor farmers in Africa	~7	50%	Shared with CRP on Humid tropics
Development of Strategic Crops Africa	~4.8	75%	Shared with CRP on Humid tropics

Source: MAIZE Project database, as of 1 August 2014

W1/2 are assigned to specific CRP research activities, partners and CRP management reported as 'planned' in the Program of Work and Budget template at the beginning of the financial year. CRPs are obliged to report on major deviations to plan. Thus, W1/2 funds become restricted through the annual workplanning process, but can be managed as CRP activities within and across FPs (compared to W3/bilateral funding earmarked to a specific project). W1/2 funding is aimed to make the program more coherent, used as "glue" to complement bilateral projects, and to enable MAIZE to pursue an overall strategy. W1/2 is targeted specifically at some FPs. FPs 1 and 3 rely to a large extent on very large bilateral projects while FPs 2, 4 and 5 have more significant contributions from W1/2 (36%, 30%, 35%, respectively).

By October 2013, more than 40 institutions had been awarded a MAIZE competitive grant addressing themes such as mechanization, gender empowerment, sustainable smallholder practices, climate change vulnerability and the management of MLN and Tar Spot Complex diseases, in addition to testing new maize varieties with resistance to diseases, Striga and environmental stresses.

MAIZE Governance and Management

MAIZE is governed by a set of formal Agreements: The CGIAR Fund Council and the Consortium signed a **Joint Agreement** in April-May 2011 that sets out the umbrella terms which govern the submission and approval of CRP proposals and the transfer and use of W1-2 funds to CRPs, and a **Consortium Performance Agreement** in relation to MAIZE, in which the Consortium assumes overall financial and programmatic responsibility for the implementation of MAIZE.

The **Program Implementation Agreement** (PIA) is between the Consortium Board (CB) and CIMMYT. CIMMYT is accountable to the Consortium for the use of the W1/2 funds that are transferred to CIMMYT, and for the satisfactory performance of MAIZE. The **Program Participant Agreement** (PPA) is signed by CIMMYT and IITA outlining the individual Center use of W1/2 funds.

CIMMYT, as the Lead Center, has the fiduciary and legal responsibility for the use of funds it receives from the Consortium, Fund Donors and Bilateral Funders; and its Board of Trustees, advised by its Director General, has the ultimate responsibility for approving workplans and budgets related to the CRP.¹⁰

MAIZE Management Committee (MC) is responsible for program implementation. It includes CIMMYT global program directors, the DDGs of CIMMYT (chair) and IITA, the R4D Director of IITA and three non-CGIAR Primary Research Partners (Syngenta Foundation, KARLo-Kenya, INIFAP-Mexico). All decisions on fund allocations, choice and allocation of competitive partner grants are done by the MAIZE Management Committee within the FUND Council approved budget. Decisions cannot be made by one institution alone and have to be supported by the non-CGIAR partners. The Management Committee also reviews annual workplans and reports.

¹⁰ In practice, the MAIZE Management Committee approves the MAIZE work plans.

manner. The evaluation will look at the proficiency of the program's governance and management structures, functions, and processes in facilitating the achievement of the program's objectives in an efficient and effective manner.

With reference to the principles of good practice in the governance and management of large partnership programs¹¹ and following the methodology of the recently completed CRP Governance and Management Review, the evaluation will assess MAIZE governance and management arrangement and functions for efficiency, accountability, transparency and fairness and - governance in particular - for independence and legitimacy. The evaluation will draw from the above mentioned Review, which also provides cross-CRP comparison and reference.

As part of the organizational performance, the evaluation will assess the efficiency (cost effectiveness) and, when applicable, effectiveness (in terms of enhancing the programs ability to perform towards its objectives) of the MAIZE governance and management functions.

Several aspects of management will be covered by the evaluation. These include:

- program management and leadership;
- the CIMMYT research management system in serving the CRP needs;
- accountability and reporting;
- monitoring and evaluation system in informing management decisions (learning) and for reporting;
- financial management and resource mobilization;
- management of intellectual property;
- partnership management
- risk management

Human resource management, including staff performance assessment, is the responsibility of each participating Center, and therefore human resource management aspects will be evaluated in the context of the CRP and its ability to perform well.

The evaluation will assess the efficiency (cost effectiveness) and, when applicable, effectiveness (in terms of enhancing the programs ability to perform towards its objectives) of the MAIZE governance and management functions.

The evaluation will also investigate issues that have emerged from the initial interviews with CIMMYT and MAIZE management, namely, the management of conflicts of interests and the host relationship between CIMMYT and MAIZE. It will also look at CIMMYT in its leadership position regarding the MAIZE CRP. The CRP Governance and Management Review highlighted two issues that CIMMYT BoT and management are considering in terms of any changes that may be required in the oversight and management arrangements regarding the two CRPs CIMMYT is leading, MAIZE and WHEAT. One is the recommendation to assure the independence (and other attributes of good governance and management listed in the Review) of the CRPs' governing bodies by establishing

¹¹ See the IEG/DAC 2007 Sourcebook for Evaluating Global and Regional Partnership Programs (GRPPs)

direct reporting from CRP leader to the governing body and subsequently to the lead-Center BoT; rather than have the reporting line through the DG or DDG. The other recommendation debated by CIMMYT was to strengthen the CRP leaders' powers to manage for results. The BoT is likely to reach a decision on these issues in its September meeting to be held in conjunction with the MAIZE Stakeholder Committee meeting. This evaluation will consider the MAIZE/CIMMYT decisions and possible changes to assess the governance and management arrangements and functions.

5. METHODOLOGY, DATA COLLECTION AND ANALYSIS

This section presents the selected methods that are used in the evaluation. Data requirements and tools used for specific criteria and questions are also given in the Evaluation matrix (Annex 1). Data and information will be collected at multiple levels, depending on the criterion and evaluation questions. For example, some aspect of science quality will be assessed at CRP level while other will be assessed at the FP or discipline level. Relevance will be assessed for example at the level of sampled projects for drawing conclusions at the FP and CRP level.

The MAIZE project portfolio and list of activities as mapped to the Flagship Projects as of 1st of August 2014, is the primary basis for assessing several criteria and issues. Some analysis can be done across the entire portfolio but mostly the evaluation will base its conclusions on sampling some 25% of the portfolio. The set of sample projects is given in Annex 4. Projects were selected to be representative of size, maturity, geographic focus and research strategy. These sampled projects will be assessed for a number of characteristics, particularly their alignment with the CRP objectives, Flagships and IDOs and other aspects of relevance; and their impact pathway design, partnerships, progress to-date, delivery strategy and other aspects influencing likely effectiveness. In-depth analysis will be conducted for a small subset of projects.

Project sampling has also influenced the choice of field sites where information and perceptions will be collected specifically on the projects in addition to other aspects of the CRP.

5.1. Data collection and analysis

Document review

The evaluation uses several sources and several kinds of documents for basic information about the program, its approval process, design and evolution; governance, management and financial arrangements and decision-making; the CGIAR reform context and its evolution; guidance regarding expectations from the CRPs; and the evaluation conduct in the reformed CGIAR (see document specification in the Evaluation Matrix, Annex 1).

The team is reviewing documents on the following areas:

- development and approval of MAIZE (original MAIZE proposal; ISPC comments and CO recommendations);
- governance and management processes (organisational handbooks; ToR and minutes of meetings of Center Boards, MC and STAC, Programme Teams, Country Teams and Committees)
- progress of MAIZE (annual reports, etc.);

- extension of MAIZE and structural changes;
- issues within the CGIAR and other CRPs relevant to MAIZE.

Project activities mapped to MAIZE

The portfolio analysis covers all activities mapped to MAIZE. The following minimum data have been collected for all activities:

- Lead center/main implementing institution
- Project/activity title
- SI and FP to which project/activity is mapped
- Source of funds: W1-2, W3, and bilateral
- Donor(s)
- Start date
- End date
- Maturity of the project in years
- Total budget
- Proportion of total budget for MAIZE
- Countries and region of operation

The project portfolio information allows some descriptive analysis over the total CRP portfolio and sampling of projects for further analysis and field visit planning. Analysis across the portfolio will look at the following aspects:

- Size distribution
- Timing and duration
- Geographic distribution
- Use of W1/2 vs W3/Bilateral funds

Analysis of sampled projects

The evaluation will undertake a review and analysis of a sample of 40 W3/bilateral projects and W1/2 activities (for list see ANNEX 4) which were selected as follows:

- 10 largest projects in the Portfolio
- 30 randomly selected projects by Flagship (within cut-off size)

This should ensure that the matching analysis adequately covers a representative sample of the MAIZE project portfolio. As the main input, the review will use Project Documents/ Proposals and Progress Reports. It will focus on:

- (i) relevance and coherence of individual activities, by assessing how well activity objectives match with the overall program objectives and Flagship/cluster objectives (or with the equivalent strategic initiatives for the previous years);
- (ii) quality of science by looking at project design;
- (iii) likely effectiveness by looking at the realism of impact pathways and progress towards results; and
- (iv) cross-cutting topics related to relevance and effectiveness.

Some of the information collected will be factual, and some will represent evaluative judgments. An IEA Evaluation Analyst will extract factual information about each activity from the activity proposals

and progress reports, and the core team members responsible for each Flagship will undertake the evaluative assessments related to the evaluation questions.

In-depth case studies

The evaluation will conduct five in-depth case studies based on bilateral projects in order to assess Program Management functions of MAIZE. The case studies have been purposefully chosen from the largest projects, aiming to cover different research strategy streams (germplasm/varieties and sustainable intensification) as well as Flagships, with emphasis on FP3 which has by far the largest share of MAIZE.

Table 6: In-depth case study projects

Project Title	FP	Research strategy	Associated country visit	Team members
Drought Tolerant maize for Africa phase III	FP 3	germplasm	ETHIOPIA, KENYA	Scott Chapman Javier Betran
Improved maize for African Soils	FP 3	germplasm	KENYA ¹²	Javier Betran Sieg Snapp
CSISA ¹³	FP 1	Sustainable intensification	NEPAL	Sieg Snapp Guido Greyseels
Nutritional Maize for Ethiopia	FP 3	germplasm	ETHIOPIA	Seyfu Katema Scott Chapman
Identifying Socio Economic Constraints for faster technology Adoption	FP 5	Socio-economics	ETHIOPIA	Guido Greyseels Seyfu Katema

The case study analysis will be based on field visits observations, semi-structured interviews (with associated program directors, projects leaders and key staff, partners/collaborators and beneficiaries) and documentation analysis (proposals and progress reports for projects, external reviews, and competitive contract grants for inclusion in case studies).

The analysis focuses on:

- Relevance or key drivers (theory of change, targeting and impact assessments or narratives) justifying the project investment(s) and anticipated outputs (relative to desired program-level outcomes);
- Coherence, quality and efficiency of project design relative to anticipated project outputs;
- Appropriateness of project prioritization, project sequencing, and project funding relative to program-level IDOs;
- Rationale for choice of partners (up- and down-stream);
- Interrelationship between bilateral projects and W1/2 funded activities;

¹² Improved maize for African Soils is also active in Ethiopia, which however is not a key country for the project.

¹³ Initially it was proposed to do an in-depth case study of Sustainable Intensification Smallholder Maize Livestock Systems South Asia. However the evaluation team was advised that this project has already closed and may not be representative of the MAIZE Asian activities.

- Integration of gender;
- Definition and quantitative verification of project outputs delivered (what, to whom, where, when, and why);
- Associated capacity building or maintenance including training and technical or financial support of essential partners/collaborators;
- Adjustments in impact pathway management and impact narratives based on project progress (learning).

Country visits

The evaluation team’s field visits include Mexico, Ghana, Kenya, Ethiopia, Nepal and China. The headquarters of CIMMYT, the lead partner in the MAIZE CRP, is located in Mexico so it was logical that the inception phase that the whole team began there (May 2014). Ghana is a principal site of IITA MAIZE CRP in West Africa and during the first week of September an IITA MAIZE team meeting took place in Tamale, in the presence also of the IITA DG and DDG-Research. A representative of the evaluation team attended the MAIZE stakeholder meeting in Beijing on Sept 17 and the CIMMYT Board of Trustees meeting 18-20 September. Kenya (double haploid facility) and Ethiopia (nutritious maize) are among important research sites for CIMMYT and its partners in East Africa. Nepal is an important and representative research site for MAIZE program in Asia. The country visits will allow observations and analysis of stakeholder perceptions through interviews. They will also be used for in-depth analysis of selected projects to gain better understanding of processes and factors that are affecting program implementation and results. The sample of countries has been selected on basis of major activities as evident in the MAIZE project database. The criteria included:

- Coverage of in-depth case study projects (please see above)
- Level of MAIZE activity in the country and history of earlier Center activities
- Potential to observe W1/2 and bilateral activities and their interlinkages
- Potential to observe important CRP characteristic such as gender activities, competitive partner grant implementation, new research

Table 7: Country visit sites

Country	Primary purposes of site visit	In-depth case study projects to be covered
Mexico	Inception meeting and meetings with lead center senior management	
Ghana	In conjunction with IITA Extended Management Meeting meet IITA managers and staff working with CRP MAIZE, MAIZE partners and stakeholders	No in-depth case study projects, but the following IITA projects: <ul style="list-style-type: none"> • The Multinational - CGIAR Project: Support to Agricultural Research for Development on Strategic Commodities in Africa (SARD-SC) • Drought Tolerant Maize for Africa (also in Kenya and Ethiopia) • West Africa Seed Program (CORAF/WECARD)
Kenya	CIMMYT regional office; IITA research station Major and long-term projects on maize; large number of current CRP projects	<ul style="list-style-type: none"> • Drought Tolerant Maize for Africa – Phase III • Improved Maize for African Soils • Identifying Socio Economic Constraints for faster technology Adoption
Ethiopia	Attendance at the stakeholder meeting to interviewing major MAIZE	<ul style="list-style-type: none"> • Drought Tolerant maize for Africa phase III • Nutritional Maize for Ethiopia • Identifying Socio Economic Constraints for faster technology

	partners and stakeholders; specific MAIZE project activities in Ethiopia	Adoption
Nepal	In Asia major long-term activities related to maize.	<ul style="list-style-type: none"> • CSISA
China	Attendance of MAIZE governance body meetings	<ul style="list-style-type: none"> • MAIZE Stakeholder Advisory Meeting. 18 Sept 2014 • CIMMYT BoT Program Committee Meeting, 21 or 22 Sept 2014

Semi-structured interviews

The interviews are already going on and will be completed by mid-November. Team members will interview a representative selection of partners, external stakeholders and peers, donor and other individuals knowledgeable of the CGIAR, MAIZE and global maize research in agricultural development context.

Most of these interviews will be conducted during the field visits. However to get a broader perspective of stakeholders, each team member will also interview around 15 additional stakeholders per telephone/skype.

The list of interviewees will be completed by the team and is based on a list of partners and researchers of MAIZE, relevant stakeholders of MAIZE and the CGIAR and the peers known to the evaluation team. Suggestions will be drawn from the Reference Group, IEA and other suitable sources. The final choice should be representative in terms of institutional background, geography, gender and discipline.

These interviews will cover the entire range of evaluation issues and questions. Interview templates will be developed for each category of stakeholder (partners, researchers, donors, international peer), specifying the context and the purpose for the interview (e.g. programmatic in general, quality of science, gender, management, governance). Semi-structured interviews will be used for the evaluation in general or as part of the in-depth case studies.

MAIZE researcher survey

MAIZE evaluation will undertake a survey of researchers (CIMMYT and IITA) working for the CRP, which will cover the research/programmatic performance of MAIZE addressing, in particular, aspects of value added of the CRP, relevance, quality of science and likely effectiveness, but also other aspects such as efficiency of management and cross-cutting issues (gender, partnerships and capacity strengthening).

The survey will be confidential, conducted through Survey Monkey, and the results will be analyzed and presented in a manner that preserves confidentiality. The survey will be launched in the middle of the inquiry phase to allow for cross-validating primarily qualitative findings in document review, interviews and team observation at field sites. The survey will be administered during October.

Quality of science analysis

The evaluation will assess the quality of science at different levels: the program as a whole and Flagship level. Quality within disciplines will also be looked at. The framework for evaluating science

quality has four dimensions: (i) processes for assuring quality; (ii) input quality; (iii) output quality; and (iv) perceptions of quality.

In the assessment comparisons will be primarily internal, looking at variability among MAIZE components; and judged against peer expectation of quality of international research of excellence. The assessment of different dimensions and the CRP as a whole aims at identifying variability within the CRP, highlighting areas of excellence and identifying areas where improvements could be made.

Processes in place

This assessment will be done at program level. The assessment aims at determining whether MAIZE management explicitly addresses quality through processes and whether this could be improved.

The evaluation will look at all internal processes that are explicitly aimed at assuring quality. These include:

- Internal peer processes and how they function;
- Use of external evaluations/reviews as management tool;
- Staff performance assessment (CIMMYT and IITA) and to what extent it is used for enhancing quality and as a talent management process;
- Incentives for assuring and stimulating high quality;
- Competitive grants process; the extent to which it is used for enhancing quality.

Inputs to science quality

This assessment will be done at FP level and it will include research staff that have team leader responsibilities; research support, resources and data; and research design.

- Team leaders include all Principal Investigators, Flagship and Cluster Leaders, and Focal Points. For these lead scientists, information about their scientific track record will be assessed;
- The adequacy of research support and resources;
- Quality of data management;
- Research design for sampled projects. ISPC comments on science quality will be taken into account (original proposal and extension proposal).

Output quality

Evaluation will look at both the quantity and the quality of science outputs, including publications and breeding material. The publications analysis will draw from a recent study conducted by Elsevier on Center publications output, and for the period when the CRP has been operating, list of publications mapped to the CRP.

This analysis will include:

- Qualitative assessment of a random sample of publications
- Quantitative assessment (bibliometric analysis) of publications
- Germplasm assessment: assessing breeding approaches and rate of gain advancement toward program objectives

Perceptions of quality

The evaluation will draw on perceptions of quality for assessing processes, inputs and outputs and as an important means for assessing science quality as it relates to breeding (research and breeder partners and peers). Other aspects will include overall science quality reputation: excellence and ambition, critical mass and comparison with other organizations.

Impact analysis

Impact here is defined to include results along the impact pathway beyond delivery of outputs; e.g. adoption, influence, outcomes and longer-term impacts towards the CGIAR goals. The assessment is based on a narrative provided by the CRP on such results from past research that has relevance in the current CRP. The narrative should contain claims made regarding the volume, scale and level (along the impact pathway) of the results supported by evidence that needs to be listed. The cut-off date for impact documentation is since the last EPMR for Centers involved.

These narratives will be assessed against the evidence. The quantity and quality of evidence will also be assessed considering the extent to which the Center/CRP can be expected to document the outcomes and impacts of its research. Assessment will also be made on the overall scale of impacts.

Governance and management analysis

The evaluation will draw heavily from existing documents, for example: the CRP proposal, commentaries from the ISPC and FC, contractual agreements and guidance document from the Consortium and Fund Council. The evaluation will build upon the recently completed CRP Governance and Management review and the data and information collected for the Review. Other means for collecting data and information include structured interviews among selected stakeholders; researcher survey; analysis of the terms of reference of the MAIZE governance and management bodies; review and analysis of the minutes of participating Center Boards, and the CRP governance and management committees. (See Evaluation matrix, Annex 1).

5.2. Main Limitations or Constraints of the Evaluation

The evaluation occurs at a time when the MAIZE CRP has been operational for slightly over three years. The summative part of the evaluation will therefore focus on research done at CIMMYT and IITA and differentiating results emerging from CRP operations as opposed to Center operations is not yet easy. The mere size of the CRP and its expanse over large geographical areas and the very large number of partners and even larger number of boundary partners and stakeholders pose limitations to the evaluation that has to approach the task through cross-scale sampling and selection of representative areas of operation. The breadth of analysis, field travel and sampling is necessarily limited by the resources and time available for the evaluation. No members of the team suffer from actual conflict of interest. Regarding any perceived conflict of interest, the team members' familiarity with the CRP come from their expertise in the topics, maize and maize-based systems, addressed by the CRP and this familiarity is not judged to influence the objectivity of any member's assessment of the CRP.

6. ORGANIZATION AND TIMING OF THE EVALUATION

6.1. Team Composition: Roles and Responsibilities

The evaluation is conducted by a team of independent external experts (for team member biodata, see Annex 2). The team is composed by six members that have expertise in particular aspects of MAIZE program and management areas and in addition have extensive experience in international agricultural development, research for development and evaluating research programs and organizations. The team has the competences necessary to assess also the following aspects of MAIZE:

- program governance, organization and management, including financial management
- sociological and gender issues
- capacity building issues
- institutional and policy analysis in the context of development
- research planning, methods and management
- intellectual property issues
- communication and partnership

The evaluation team composition and main areas of responsibility are show in Table 8 below.

Table 8: Evaluation team responsibilities

Name	Role	Main responsibilities
Guido Gryseels	Team leader	Economics' and social sciences components of research, impact, research strategy, gender; Lead in FP 5 (SI 1, SI 2) with Sieg Snapp
Javier Betran	Team member	Plant breeding and breeding related research, private sector; Lead in FP 3 (SI3, SI5, SI7) with Scott Chapman
Scott Chapman	Team member	Crop physiology, genomics, ARI relations; Lead in FP 2, (SI8, SI9) with Javier Betran
Seyfu Ketema	Team member	Plant breeding system, capacity building, NARS relations; Lead in FP 4 (SI2, SI3, SI6) with Guido Gryseels
Pammi Sachdeva	Team member	Governance, management, finances
Siegling Snapp	Team member	Natural resources management research, conservation agriculture; Lead in FP 1 (SI2, SI3) with Seyfu Ketema

6.2. Evaluation governance: roles and responsibilities

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

The IEA is responsible for planning, initial designing, initiating, and managing the evaluation. The IEA is also responsible for the quality control of the evaluation process and outputs, and dissemination of the results. The IEA has taken an active role in the preparatory phase of the evaluation by collecting background data and information and by carrying out preliminary analysis on the CRP on MAIZE. An evaluation manager supported by an evaluation analyst provides support to the team throughout the evaluation.

A Reference Group has been set-up to work with the IEA 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 Reference Group composition is shown in Table 9.

Table 9: Evaluation Reference Group

Name	Title	Organization
Marianne Banziger	MAIZE Leader and DDG, CIMMYT	CIMMYT
David Watson	MAIZE Manager	CIMMYT
David Chikoye	Director for R4D, IITA	IITA
Ylva Hillbur	DDG, IITA	IITA
John Snape	CIMMYT Board Chair	John Innes Institute
Mary Ann P. Sayoc	MAIZE StAC member	East-West Seed

MAIZE management (including the MAIZE Leader) has a key role in helping provide for the evaluation team's information needs. It provides documentation and data, information on all MAIZE activities, access to staff for engagement with the evaluators, and information on partners and stakeholders. It facilitates arrangement of site visits and appointments within the lead Center and other stakeholders. MAIZE management is also responsible for giving factual feedback on the Draft Report and for preparing the Management Response to the Final Report. It assists in dissemination of the report and its finding and lessons and it acts on the accepted recommendations. While the evaluation is coordinated with MAIZE management, CIMMYT as the lead Center is a key stakeholder in the evaluation. It conducts most part of the research done within MAIZE. Its leadership and Board are expected to make themselves available for consultations during the evaluation process.

6.3. Quality Assurance

In order to ensure technical rigor to the evaluation, the IEA will work closely with the Evaluation Team throughout the evaluation, and will ensure that the tools and methodologies, as well as the process followed, are in line with the CGIAR IEA Evaluation Policy and Standards.

6.4. Timeline and Deliverables

The evaluation timeline is shown in Table 10.

Table 10: Evaluation Timetable and Tentative Deliverables

Phase	Period	Main outputs	Responsibility
Preparatory Phase	Jan 2014 – May 2014	Final ToR Evaluation team recruited	IEA
Inception Phase	May 2014 – Sep 2014	Inception Report	Evaluation team
Inquiry phase	Sep 2014 – Nov 2014	Various analysis products as defined in inception report;	Evaluation team
	Nov 2014	Preliminary findings presented to MAIZE stakeholders	Evaluation team
Reporting phase			
Drafting of Report	Nov 2014 – Jan 2015	Draft Evaluation Report	Evaluation team
	March	Feed back on Draft Report	IEA, MAIZE management

Final Evaluation Report	March 2015	Final Evaluation Report	Evaluation team
Management Response	April 2015	Management Response	CRP Management
Dissemination phase	June 2015	Communications products	IEA CRP Management

The Evaluation Report will be the main deliverable of the evaluation. Its recommended length is maximum 100 pages, excluding Annexes. It will describe the findings and conclusions that are based on the evidence collected within the framework defined for the evaluation criteria and issues and for addressing the specific evaluation questions (Annex 1). It will present a set of recommendations that are prioritized, focused and actionable, indicating the stakeholders that are responsible for their implementation. The main findings, conclusions and recommendations will be summarized in an executive summary.

6.5. Feedback and Responses to the Evaluation

Adequate consultations with MAIZE stakeholders will be ensured throughout the process. In particular, debriefings on key findings will be held at various stages of the evaluation. Consultations, feedback and finalization of the Evaluation Report will take place as per IEA guidance on “CRP Evaluation Process for Finalization, Feedback and Response”.

MAIZE management will prepare a response to the evaluation for the consideration of the Consortium Board. The Management Response will contain both an overall response to the evaluation, as well as response to each recommendation. The **Consortium** (Consortium Office, with approval of the Consortium Board) will review the Evaluation Report and MAIZE Management Response and provide their response on the Evaluation Report recommendations, Management Response and Action Plan.

The Final Evaluation Report, MAIZE Management Response and the Consortium Board Response will be considered by the Fund Council’s **Evaluation and Impact Assessment Committee** (EIAC) that will lead the Fund Council discussion on the Evaluation Report and the MAIZE Management Response and Consortium Board Response, and propose the decisions to be taken. The **Fund Council** will endorse the evaluation recommendations, responses, action plans and proposed follow-up.

6.6. Dissemination plans

The Team leader will prepare **presentations** for disseminating the Evaluation Report to targeted audiences. Several events will be organized to disseminate the evaluation results, including but not limited to:

- Virtual presentation to MAIZE management on the **preliminary findings** (end of November – early December 2014);
- **Presentations of the Draft Report** to MAIZE Reference Group, MAIZE Stakeholder Advisory Committee, CIMMYT and IITA Management and Board; Consortium (February 2015);
- **Presentation of the Final Report** to the Evaluation and Impact Assessment Committee (EIAC) and the Fund Council (May 2015).

ANNEX 1: EVALUATION MATRIX

Evaluation Issues and Questions	Data Collection and Analysis
<p>Overarching questions</p> <ul style="list-style-type: none"> • Is the CRP evolving in such a way as to demonstrate added value to research of maize and maize-based systems, in comparison with the research done through two Center mandates as previously? • Is MAIZE priority setting effective in terms of program coherence and focus of research on its intended objectives, given the relatively small proportion of unrestricted (W1/2) funding and the historic mandates of the two participating Centers? • Is the CRP managing well the very high and increasing level of restricted funding in terms of program quality and effectiveness (including high quality staff), sustainability and administrative load? • Are the impact pathways in the new CRP structure sufficiently specified regarding target beneficiary groups, clearly formulated and used in program monitoring and management? 	<p>To be addressed through the more detailed questions and data analysis shown below.</p>
<p>Research/Programmatic Performance</p>	
<p>Relevance</p>	
<p>Coherence</p> <ul style="list-style-type: none"> • Is the MAIZE CRP strategically coherent and consistent with the main objectives of the CRP and the goals and System Level Outcomes presented in the CGIAR’s Strategy and Results Framework? • Is there clear rationale for the five Flagship Projects and are they internally coherent? • Is the core funding (Windows 1 and 2) used strategically in key areas of the program, and for leveraging bilateral funding, to align bilateral projects within program strategy? • Is the MAIZE CRP defining, developing and prioritizing bilateral projects targeting SRF objectives? 	<p>Desk review of the CGIAR’s Strategy and Results Framework (SRF); the approved MAIZE proposal; MAIZE 2015-16 Extension proposal; ISPC commentaries on original and extension proposal; CO commentary on extension proposal. Matching analysis In-depth case studies. Stakeholder interviews.</p>
<p>Comparative advantage</p>	<p>Desk review as above.</p>

- What is the comparative advantage of MAIZE (across its Flagships and activities) - in terms of the CGIAR's mandate of delivering international public goods – relative to other international initiatives and research efforts, including the private sector, partner country research institutions and development agencies?
- In the different areas of research (Flagship Projects, Clusters of Activity) does MAIZE play an appropriate role as global leader, facilitator or user of research compared to partners and other research suppliers?
- Does MAIZE engage with appropriate partners, given their roles in implementation and achieving the objectives of the program
- What is the MAIZE CRP comparative advantage and its expected future evolution across the research and development stages (i.e. from basic research to product delivery).

In-depth case studies.
Stakeholder interviews.

Program design

- Does the program target an appropriate set of Intermediate Development Outcomes (IDOs) and are the activities relevant, of highest priority for targeting the IDOs?
- Do the impact pathways logically link the principal clusters of activities to the IDOs and are the IDOs 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 CRP research activities been adequately prioritized, in line with resource availability?
- Is MAIZE CRP implementing program management? How?

Desk review of MAIZE IDOs and impact pathways.
Interviews of MAIZE management and principle investigators.
Researcher survey

Quality of Science

- Do the research design, problem-setting, and choice of approaches reflect high quality in scientific thinking, state-of-the-art knowledge and novelty in all areas of research?
- Is it evident that the program builds on the latest scientific thinking and research results?
- Are the internal processes and conditions, including research staff and leadership quality,

ISPC commentaries
Publications analysis
In-depth project analysis
Interviews of peers
In-depth project analysis

Interviews about internal processes
H-index analysis

adequate for assuring science quality	Researcher survey
<ul style="list-style-type: none"> • Are the research outputs, such as publications, of high quality and what role do CRP scientists have in the publication? • Is the MAIZE CRP participating in state of the art breakthrough research initiatives with leading institutions? 	Analysis of publications and other outputs
Likely effectiveness	
<ul style="list-style-type: none"> • Has the CRP stayed on track in terms of progress and milestones toward outputs, and along the impact pathway toward outcomes? 	Review of MAIZE Annual reports and performance reports.
<ul style="list-style-type: none"> • Is the monitoring system used effectively for adjusting the program on basis of lessons learned? 	Interviews with CRP management and FP leaders Assessment of M&E systems and its use in program adjustment
<ul style="list-style-type: none"> • Have adequate constraint analyses and lessons from ex post studies informed program design for enhancing the likelihood of impact? 	Review of impact pathways and theories of change and their use in program design and adjustment
<ul style="list-style-type: none"> • Is the CRP adequately addressing enabling factors for scaling up outcomes? • Are processes clearly defined and quality reviews conducted to improve effectiveness? 	Review of impact pathways and theories of change and their use in program design and adjustment Interviews with partners during site visits.
Impacts and Likely Sustainability	
<ul style="list-style-type: none"> • What has been the record of the participating centers engaged in research on maize and maize systems, measured as both outcomes and impacts from past research? What is the impact of MAIZE research and how is it been estimated? 	Review of MAIZE impact narrative and evidence provided in support to the claims.
<ul style="list-style-type: none"> • Have there been sufficient efforts to document outcomes and impact from past research, with reasonable coverage over all research areas? 	Same as above. Interviews with stakeholders
<ul style="list-style-type: none"> • What can be concluded from the findings of ex post studies, regarding the magnitude of impact in different geographical regions—and the equity of benefits? 	Same as above
<ul style="list-style-type: none"> • To what extent have benefits from past research been—or to what extent are they likely to be—sustained? 	Interviews with stakeholders
Gender	

<ul style="list-style-type: none"> Has gender been adequately considered in research design in terms of relevance to and effect on women? 	<p>Assessment of gender strategy, gender-related IDOs and impact pathways in terms of gender considerations. Analysis of gender research Analysis of incorporation of gender issues in sampled projects Interviews Researcher survey</p>
<ul style="list-style-type: none"> 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 	<p>Same as above.</p>
Capacity Strengthening	
<ul style="list-style-type: none"> To what extent do capacity building efforts address partners' needs? To what extent is MAIZE training new people who continue to contribute to the CRP? 	<p>Assessment of capacity building strategy and consideration of capacity in the FP impact pathways Analysis of incorporation of capacity building in sampled projects. Interviews. Researcher survey.</p>
<ul style="list-style-type: none"> Does capacity building target women as well as men adequately and their differential needs taken into account 	<p>Same as above.</p>
<ul style="list-style-type: none"> To what extent are capacity issues taken into account in the impact pathway analysis? 	<p>Same as above.</p>
<ul style="list-style-type: none"> Are capacity building efforts integrated with the research mandate and delivery of the CRP? 	<p>Same as above.</p>
<ul style="list-style-type: none"> Are the capacity building efforts and incentives among partners adequate for enhancing the long-term sustainability of program effects? 	<p>Same as above.</p>
Partnerships	
<ul style="list-style-type: none"> To what extent are the partnerships relevant and cover the relevant partner groups to achieve program objectives? 	<p>Assessment of FP impact pathways. Interviews at country sites.</p>
<ul style="list-style-type: none"> Are the partnerships chosen and managed so as to maximize efficiency and effectiveness and mutual benefits? 	<p>Same as above.</p>

Organizational performance

Governance and Management	
<p>Legitimacy.</p> <ul style="list-style-type: none"> To what extent do the governance and management arrangements permit and facilitate the effective participation and voice of the different categories of stakeholders in the governance and management decisions, taking into account their roles and responsibilities? 	<p>Desk reviews of the minutes of Fund Council, Consortium Board, CIMMYT Board, StAC, and MAIZE MC.</p> <p>Interviews with selected staff from the Fund Office, Consortium Office, CIMMYT and IITA; StAC members, MC members.</p> <p>Review of CRP Governance and Management Review report and relevant recommendations of PWC review.</p> <p>Interviews with partners.</p>
<p>Accountability.</p> <ul style="list-style-type: none"> To what extent are the lines of accountability within the program well-defined, accepted, and being followed? Are there any significant gaps in either programmatic or fiduciary accountability? 	<p>Same as above.</p> <p>Direct observation of the work of CIMMYT Board and StAC meetings in Beijing.</p> <p>Review of CIMMYT Board decisions following the Beijing meeting.</p>
<p>Transparency.</p> <ul style="list-style-type: none"> To what extent are the program’s decision-making, reporting, and evaluation processes open and available to the general public, subject to confidentiality requirements in scientific research and in human resource management? 	<p>Same as above.</p> <p>Desk review of MAIZE planning documents, strategies, presentations, and report.</p> <p>Review of the MAIZE website.</p>
<p>Conflicts of Interest.</p> <ul style="list-style-type: none"> To what extent are conflicts of interests being identified and managed transparently? 	<p>Same as above.</p> <p>Desk review of CGIAR, CIMMYT, and MAIZE policies on conflicts of interest.</p>
<p>Efficiency</p> <ul style="list-style-type: none"> Are the MAIZE institutional arrangements, management and governance mechanisms efficient? 	<p>Interviews and survey with selected CIMMYT Board, StAC and MC members.</p> <p>Direct observation of the work of CIMMYT Board and StAC meetings in Beijing.</p>

Management effectiveness

- Does MAIZE research management provide effective leadership, culture and ethos for advancing the program’s objectives?
- Is the significant growth, including recruitment of new staff, managed efficiently and effectively?
- How is quality management conducted? What are the policies and processes?

Draws from CIMMYT “organizational culture” review planned for mid-2014.

Interviews with CRP staff during site visits.

Researcher survey

Financial management

- To what extent does the program have good financial management, budgeting, and reporting?

Desk review of CGIAR and CIMMYT financial guidelines and audit reports.

Interviews with CIMMYT and IITA financial staff and StAC members.

Resource mobilization and allocation

- How effective and efficient have been the criteria and the procedures for allocating the program’s resources? How have the resource allocation processes and timing affected the implementation of the program’s research activities?
- How effective has been the mobilization of financial resources for the program?

Desk review of resource allocation criteria, procedures, and results.

Desk review of minutes of MC meetings.

Interviews with relevant managers and research leaders.

Effects of CGIAR reform

- To what extent have the reformed CGIAR organizational structures and processes increased (or decreased) efficiency for successful program implementation
- What lessons can be learned to date regarding the effectiveness of the new governance and management arrangements of the CGIAR influencing MAIZE and of MAIZE specifically?

Interviews with CRP leadership, StAC and MC members

Draws on findings of the previous CGIAR and CRP level reviews.

Collaboration

- Is the level of collaboration and coordination with other CRPs appropriate and efficient for reaching maximum synergies and enhancing partner capacity

Desk review of MAIZE proposal and Annual reports.

Interviews with stakeholders.

M&E and reporting

- Is MAIZE management using a monitoring and evaluation system efficiently for recording and enhancing CRP processes, progress, and achievements?

Review of RMS.

Interviews with CIMMYT and IITA managers and lead CRP scientists.

Risk management

Review of CIMMYT risk analysis related to CRP, and

- Are CRP implementation and sustainability related risks adequately identified and managed?

decisions on actions (September update).
Interviews with concerned CIMMYT and CRP managers
and StAC/CIMMYT Board members.

IP management

- Is the management of Intellectual property used or generated by the CRP appropriately managed?

Review of CIMMYT IP policies.
Interview of IP staff and relevant research managers.

ANNEX 2 – TEAM MEMBER PROFILES

Guido Gryseels (team leader)

Guido is an economist and doctor of agricultural sciences who is currently Director General of the Royal Museum for Central Africa, Belgium, which is a major research institute on Africa in both the human and natural sciences. He is also a member of the Board of Directors of Federal Science Policy and of the Fund for Scientific Research in Belgium, and Chair of the Programme Committee on Food and Business Research at the Netherlands NWO/WOTRO. Earlier, he served as Deputy Executive Secretary of the Technical Advisory Committee of the CGIAR, hosted by the FAO. He also held other important positions in the CGIAR, including that of Executive Secretary of the CGIAR's Impact Assessment and Evaluation Group and chairman of the Board of Trustees of ICARDA based in Syria. From 1979 to 1987, he held various senior positions at the International Livestock Center for Africa, in Ethiopia.

Javier Betran (team member)

Javier has a PHD in plant breeding. Javier is currently the Head of the Maize Breeding Europe, Africa and Middle East for Syngenta. Before that he was professor in the US. Javier was a postdoctoral research and breeder at CIMMYT in 1990s. He is an expert in Plant breeding, quantitative genetics, agronomy, statistics, biotechnology, environment, abiotic and biotic stresses, and people development. Javier has extensive international experience in maize breeding. He has a large publication record on maize breeding. He has collaborated with international organizations like the Rockefeller Foundation, CGIAR centers.

Scott Chapman (team member)

Scott has a PHD in agricultural science and currently does research on genetic and environment effects on growth of field crops, particularly in drought dominated regions, applying quantitative approaches (crop simulation and statistical methods) and phenotyping (aerial imaging, canopy monitoring). Scott was an Associate Scientist at CIMMYT's Maize Program in the early nineties. Over the last 20 years Scott conducted research at the Commonwealth Scientific and Industrial Research Organisation and is currently an adjunct professor at The University of Queensland in Australia.

Seyfu Ketema (team member)

Before becoming executive secretary of the Association for Strengthening Agricultural Research in Eastern and Central Africa in 2002, Seyfu served as director general of the Ethiopian Agricultural Research Organization, Ethiopia's minister of agriculture, general manager of the Institute for Biodiversity Conservation and Research and worked for the Institute of Agricultural Research. Seyfu was the Regional Representative for Eastern Africa on the CGIAR and served as Board Member for ICARDA and ICRAF. Seyfu obtained his M.Sc. and Ph.D. in plant breeding from the University of London.

Paramjit (Pammi) Sachdeva (team member)

Pammi is specialized in program and institutional assessment and HR management with expertise also in capacity development, systems analysis and organizational design. Since 2001 he has worked as an independent consultant and been involved in a number of external reviews of CGIAR Centers and programs, and in international development project and human resource management

consultancies. Previously he worked at the World Bank as senior management specialist and advisor and earlier in his career at ISNAR as senior research officer. He has a PhD in social systems sciences.

Sieglinde (Sieg) Snapp

Sieg is an agronomist and plant physiologist who is currently Professor of Soils and Cropping Systems Ecology at Kellogg Biological Station and Department of Plant, Soil and Microbial Sciences, Michigan State University. Sieg is interested in participatory systems research and extension approaches to natural resource management and sustainable intensification. She has extensive experience with multidisciplinary teams including scientists, farmers, students, advisors and extension to support research for development. Current research projects include the Long term Ecological Research in Row Crops at MSU, sustainable intensification research through on-farm experimentation and modeling supported by IITA/USAID in Malawi, and systems analysis for perennial grains on smallholder farms in Africa, supported by BMGF.

ANNEX 3: LIST OF PERSONS CONSULTED IN INCEPTION PERIOD

Name	Organization	Position
Marianne Bänziger	CIMMYT	Deputy Director General Research & Partnership
Ranjit Bandyopadhyay	IITA	Pathologist
Michael Baum	ICARDA	Director – BIGMP
Hans Braun	CIMMYT	Program Director Global Wheat Program
Ernesto Briones	CIMMYT	Senior Systems Developer
David Chikoye	IITA	R4D Director, IITA-Southern Africa
Marisa De la O Elizagaray	CIMMYT	Manager, Risk Management & International Policy
Olaf Erenstein	CIMMYT	Program Director, Socioeconomics Program
Richard Fulss	CIMMYT	Head, Knowledge Management
Bruno Gérard	CIMMYT	Program Director, Global Conservation Agriculture
Bram Govaerts	CIMMYT	Associate Director, Global Conservation Agriculture
Sara Hearne	CIMMYT	Senior Scientist, Maize Molecular Geneticist/Pre-breeder
Anna Herremans	CIMMYT	(former) Director, International Finance
Ylva Hillbur	IITA	DDG for Research
Huntington Hobbs	CIMMYT	Leader, Strategic Planning and Research Coordination, MasAgro
Nina Jakobi	CRP	WHEAT Program Assistant
Victor Kommerell	CRP	WHEAT Program Manager
Michael G. Listman	CIMMYT	Senior Science Writer, Corporate Communications
Diana Lopez	CIMMYT	Project Management Unit
Thomas Lumpkin	CIMMYT	DG
Sally Mallari	CRP	MAIZE Program Assistant
Richard Medina	CIMMYT	Director, Internal Audit Fernando
Fernando P Mendoza	CIMMYT	Senior Internal Auditor
Abebe Menkir	IITA	Team leader for maize improvement research at IITA, Focal Point for CRP at IITA
Ivan Ortiz Monasterio	CIMMYT	Agronomist, Wheat Harvest Coordinator
Patricia V Mir	CIMMYT	Risk Management Analyst
Thomas S. Payne	CIMMYT	CIMMYT Board Secretary
Kevin Pixley	CIMMYT	Program Director, Genetic Resources Program
B M Prasanna	CIMMYT	Program Director Global Maize Program
Jens Riis-Jacobsen	CIMMYT	Director of Int. Systems and Information Technology
Nellooli P. Rajasekharan	CIMMYT	Director, International Human Resources
Jose Ramiro T. Mondragon	CIMMYT	Manager, Financial Planning
Geneviève Renard	CRP	MAIZE and WHEAT Communication Specialis
Jean-Marcel Ribaut	GCP	Director, Generation Challenge Program
Horacio Rodriguez	CIMMYT	MasAgro Extension Coordinator
Victor Lopez Saavedra	CIMMYT	Manager of Institutional Relations TTF-MasAgro
Felix SanVicente	CIMMYT	Breeding lead for the tropics in Mexico
Urs Schulthess	CIMMYT	Crop modeler, Global Conservation Agricultural program
Thomas W. Short	CIMMYT	DDG Support Services

Graham Sim	CIMMYT	Director, International Finance
Matthew Thornton	CIMMYT	Hub Coordinator
Sam Trachsel	CIMMYT	Scientist, Global Maize Program
David Watson	CRP	MAIZE Program Manager
Martha Willcox	CIMMYT	Senior Scientist working with the Seeds Discovery (SeeD) project

ANNEX 4: SAMPLE PROJECT

Code	Lead center	Title	Funding	Donor	FP	Budget
10 largest projects						
M0193	CIMMYT	Drought Tolerant Maize for Africa – Phase III	W3	BMGF	3	24,242,177
T0073	CIMMYT	Sustainable intensification of maize-legume cropping systems for food security in eastern and southern Africa (SIMLESA) (CSE2009/024)	Bil	ACIAR	1	16,147,130
M0167	CIMMYT	Improved Maize for African Soils (IMAS)	Bil	BMGF	3	14,541,716
PJ-001371	IITA	The Multinational - CGIAR Project: Support to Agricultural Research for Development on Strategic Commodities in Africa (SARD-SC) {MAIZE}	Bil	AfDB, SARD-SC	1	11,858,250
M0196	CIMMYT	Nutritious maize for Ethiopia	Bil	CIDA	3	11,666,500
M0215 and M0146	CIMMYT	Water Efficient Maize for Africa- Phase II	Bil	BMGF	3	10,541,990
M0212	CIMMYT	MASAGRO-Estrategia internacional para aumentar el rendimiento del Maíz	Bil	SAGARPA	4	7,879,393
C0040	CIMMYT	MASAGRO-Desarrollo sustentable con el agricultor	Bil	SAGARPA	1	7,728,887
PJ-001511	IITA	Drought Tolerant Maize for Africa – Phase III	Bil	CIMMYT	3	6,829,358
M0205	CIMMYT	Effective Grain Storage for better livelihoods of African Farmers- Phase II	Bil	SDC	5	6,823,671
30 randomly selected projects						
A1111	CIMMYT	China Contribution	W3	Chinese Academy of Agricultural Sciences	0	122,499
C0037	CIMMYT	Cereal Systems Initiative for South Asia (CSISA)-India	W3	USAID	1	280,923
C0029	CIMMYT	Take it to the Farmer (TTF)-Private sector contributions	Bilateral	Various private sector companies	1	90,150
C0002.01	CIMMYT	2010 EC/IFAD CGIAR Programme: Sustainable intensification of smallholder maize-livestock farming systems in hill areas of South Asia (C-	W3	IFAD	1	1,364,700

ECG-43)

	IITA	Integrated Striga management for Afrcia	W1/2	CGIAR	1	854,330
C0045	CIMMYT	Colaboración sobre Seguridad Alimentaria Integrado a las Plataformas de Investigación e Innovación del CIMMYT	Bilateral	Syngenta Agro	1	101,250
M0191	CIMMYT	Increased productivity of maize-based systems in Zambia's Eastern Province	Bilateral	USAID	1	881,042
	CIMMYT	Enhancing Maize Production and Productivity Through Best Nutrient Management Practices in Nepal	W1/2	CGIAR	1	200,000
T0094	CIMMYT	Scale out the research results of the SIMLESA to neighbouring countries Botswana and Uganda to make an impact in improving food security (C2011/180)	Bilateral	ACIAR	1	102,600
	CIMMYT	Using decision support tools to develop innovative maize-based technologies for enhancing crop output in northern Ghana	W1/2	CGIAR	1	200,000
M0185	CIMMYT	Genomic Selection: The next frontier for rapid gains in maize and wheat improvement	Bilateral	Cornell University	2	489,653
R0135	CIMMYT	Integrated breeding platform	Bilateral	Generation Challenge Program	2	178,517
	CIMMYT	Exploring transgenic approaches for ensuring low-income countries and resource poor farmers' access to transgenic options	W1/2	CGIAR	2	750,000
M0224	CIMMYT	Managing maize lethal necrosis (MLN) in eastern Africa through accelerated development and delivery	Bilateral	Syngenta Foundation for Sustainable Agriculture	3	921,782
M0153	CIMMYT	Maize breeding for drought tolerance as an option to maintain maize production and decrease mycotoxin damage in the actual changing climate	Bilateral	World Bank	3	362,385
M0173	CIMMYT	Support for Striga work - seed breeding and production and on-farm testing	Bilateral	BASF, The Chemical Company	3	82,509
	CIMMYT	Identification and dissemination of farmers' preferred nutritious maize varieties suitable for food, feed, silage and fodder in Nepal	W1/2	CGIAR	3	130,000

	IITA	Various DTMA related activities	W1/2	CGIAR	3	892,158
M0207	CIMMYT	Improved Maize for African Soils (IMAS)	W3	USAID	3	115,320
PJ-001911	IITA	Maize lethal necrosis disease: investigating risks and pre-emptive management in West Africa	CGIAR	CIMMYT	3	116,193
	CIMMYT	Meeting the rapidly growing poultry sector requirements through value-added maize germplasm	W1/2	CGIAR	3	375,000
	CIMMYT	Increasing yield potential and stress tolerance of QPM varieties for southern Africa	W1/2	CGIAR	3	375,000
	CIMMYT	Increasing yield potential and stress tolerance of QPM varieties for southern Africa	W1/2	CGIAR	3	n/a
M0194	CIMMYT	Improving disease resistance of tropical maize germplasm	Bilateral	VILMORIN & CIE	3	197,558
M0208	CIMMYT	Heat stress resilient maize for South Asia through a public-private partnership	W3	USAID	3	806,343
	IITA	Doubling Maize in Nigeria II	Bilateral	Nigerian Gov	4	\$ 172,000.00
T0097	CIMMYT	Identifying socioeconomic constraints to and incentives for faster technology adoption: Pathways to sustainable intensification in eastern and southern Africa (FSC/2012/024)	W3	ACIAR	5	2,064,583
PJ-001322	IITA	Research Project on Aflatoxin Control in Maize Through Aflatoxin Resistant Maize Variety Breeding And Other Aflatoxin Management Methods	Bilateral	NESTLE-SWITZERLAND	5	50,000
M0151	CIMMYT	Developing maize resistant to stem borer and storage insect pests for Eastern and Southern Africa- IRMA III Conventional	Bilateral	Syngenta Foundation	5	2,824,950
T0092	CIMMYT	2011 EC/IFAD CGIAR Programme: Conservation agriculture and smallholder farmers in Eastern and Southern Africa-Leveraging institutional innovations and policies for sustainable intensification and food security (CASFESA, 2011/260-204)	W3	IFAD	5	491,716