



RESEARCH
PROGRAM ON
Maize



Led by CIMMYT
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MAIZE

CRP MAIZE Gender Strategy

CGIAR Research Program on MAIZE

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Acknowledgements

Special thanks go to Diana Lopez and Vongai Kandiwa for their support and great contributions to this second iteration of the CRP MAIZE gender strategy. Many thanks also go to Amare Tegbaru, IITA, Anne Bouma, and Tina Beuchelt, for their constructive inputs to the previous version; and to Dawit Alemu, Wilfred Mwangi, Vicki Wilde, Monica Fisher, Tsedeke Abate, Bruno Gerard, Marianne Banziger, Victor Kommerell and Dave Watson for their valuable review and comments.

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1. Background

1.1 Introduction

Maize is the preferred staple crop of 900 million of the world's poor and one-third of all malnourished children. Together with rice and wheat, maize provides 30 percent of all calories for more than 4.5 billion people in 94 developing countries (von Braun et al. 2010). Between now and 2050, the demand for maize in the developing world will double, fuelled by population growth and changing diets. As one of the most important food staples in the world, maize is a crucial part of addressing the issues related to food security.

These challenges form the collective focus of worldwide maize research, a collaboration of more than 300 public and private organizations united to reduce hunger in the developing world. Building on the input, strength and collaboration of partners, the CGIAR Research Program (CRP) on MAIZE combines the strength of farming communities, international and national public and private sector partners, policy-makers and development organizations to stabilize maize prices and double the productivity of maize-based farming systems, making them more resilient and sustainable while significantly increasing farmers' income and livelihood opportunities, without using more land as climates change and fertilizer, water and labor costs rise.

The MAIZE gender strategy is conceived as part of a process of continual improvement. As such, the current strategy represents the second iteration, incorporating information from the 2013 MAIZE gender audit and aligned with the 2014 MAIZE extension proposal. The document briefly introduces CRP MAIZE (1.2), before presenting the objective of the MAIZE gender strategy (2); the rationale for addressing gender in MAIZE (3); and the beneficiaries of the MAIZE gender strategy (4). This is followed by an overview of the gender impact pathway for MAIZE (5), then section 6 which explains the approach to integration of gender analysis and gender research perspectives in each of the MAIZE Flagship Projects. Section 7 addresses the mainstreaming of gender in institutional frameworks and procedures, and is followed by a separate section on monitoring and evaluation (M&E) (8). The MAIZE gender budget strategy is described in section 9, while the organization of gender integration is explained in section 10. The final section (11) comments on the capacity for gender analysis and research in MAIZE.

1.2 CRP MAIZE

The goal of MAIZE is to ensure that publicly-funded international research contributes to more stable maize prices and to more productive, resilient and sustainable maize-based farming, while significantly improving the incomes and livelihood opportunities of resource-poor women, men and children who depend on maize-based farming systems.

As set out in the MAIZE document, the success of the CRP implies meeting the following impact targets:

1. As compared with current trends, boost maize productivity by at least *an additional* 20 percent by 2020 and 50 percent by 2050 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 percent.
4. Diversify maize-based farming systems and enhance their productivity, stability and sustainability, targeting 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. 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 first target beneficiary group for MAIZE worldwide is smallholders who live in stress prone environments and have poor market access. This group includes an estimated 640 million poor people who live on US \$2 per day or less, of whom 275 million are maize-dependent and among whom 72 million are malnourished children. The second target group comprises market-oriented smallholders in more favorable production areas, with great potential to supply markets but who lack access to appropriate technology. This group includes 470 million poor, of whom 367 million are maize-dependent and among whom there are at least 49 million malnourished children. Beyond these target groups, there will be spill-over benefits to other farmers in developing countries. Across the target groups, MAIZE has pledged to apply a special focus on empowering women and young adults as these are considered the population segments that hold the greatest leverage for development.

MAIZE was originally organized around nine thematic Strategic Initiatives (SI), reflecting high priorities for international maize research and designed for integrated implementation by partners to generate products and services that meet the needs and aspirations of target beneficiaries and leverage the capacities of regional and local research and development partners and smallholder farmers in the target groups, in particular women and young adults. Following subsequent changes in the CGIAR consortium guidelines and requirements for CRPs, as per 1 January 2015 the nine SIs will be consolidated into five initiatives, which will henceforth be referred to as Flagship Projects (FP). The titles and main clusters of activities of the five FPs are listed in the box below.

Flagship Projects of CRP MAIZE

FP1. Sustainable intensification of maize-based farming systems

- 1) Development partners adopt strategic, scalable approaches based on farming systems analytical frameworks at multiple spatial and temporal scales
- 2) Participatory R4D to integrate technical and institutional components at multi-hub/landscape level to increase system productivity and sustainability
- 3) Adapted agronomic technologies with the potential for increased production and productivity (resource use efficiency) move on-farm

FP2. Novel tools, technologies and traits for improving genetic gains and breeding efficiency

- 1) Unlocking and incorporating important native trait variation through the Seeds of Discovery project
- 2) Trait pipeline development and capacity building
- 3) Informatics, database management & decision support tools
- 4) Novel haploid inducers and improved protocols for efficient DH production in the tropics
- 5) Novel phenotyping tools for abiotic and biotic stresses and quality traits

FP3. Stress-resilient and nutritious maize

- 1) Developing elite abiotic stress tolerant maize germplasm for SSA, Latin America and Asia
- 2) Incorporating biotic stress resistance into elite abiotic stress tolerant maize germplasm
- 3) Incorporating quality traits in elite genetic backgrounds for the tropics

FP4. Aligning with and strengthening maize seed systems for effective product delivery

- 1) Evaluation and publication of the per se performance and seed producibility of elite maize hybrids
- 2) Production of stimulatory quantities of breeder, pre-basic and pre-commercial hybrid seed, and quality assurance services provided to SMEs
- 3) Facilitation of pilot hybrid seed productions and on-farm demonstration of pre- and newly commercialized maize varieties with emerging local seed enterprises
- 4) Capacity building of SMEs and NSAs (National Seed Authorities)
- 5) Socio-economic and policy-related research and publication

FP5. Inclusive and profitable maize futures

- 1) Prioritizing through foresight and targeting
- 2) Enhancing pathways to impact
- 3) Enhancing gender/social inclusiveness
- 4) Harnessing smallholder market opportunities

*Adapted from the MAIZE CRP
Extension Proposal 2015-2016*

2. Objective of the MAIZE gender strategy

This strategy document outlines the process and approach that MAIZE has adopted in order to contribute to and promote gender equality and equity in agricultural research for development (R4D) related to maize-based systems. Gender equality and equity are essential elements in the quest to further enhance agricultural growth, food security and sustainable use of the natural resource base. This strategy represents a concerted effort of the maize R4D community to systematically consider and address gender disparities in maize R4D and contribute to the promotion of gender equality in agricultural development in general. The **objective** of the MAIZE gender strategy is:

To promote equality of opportunity and outcomes between resource-poor women and men farmers in maize-based systems.

In addition to gender, farmers may also differ in age, ethnicity, religion or social group etc., and though gender is the focal point of this strategy, this does not imply that the other elements should not be considered.

3. Justification and rationale for addressing gender in MAIZE

The combined challenges of continued population growth, declining agricultural productivity growth and environmental depletion put pressure on agricultural research and development to work on all fronts to further enhance agricultural productivity and food security. Addressing gender disparities between women and men farmers in the developing world has a significant development potential in itself, and as such is a key element in meeting these challenges.

Although women play a crucial role in farming and food production, they are often disadvantaged and face greater constraints in agricultural production than men (Meinzen-Dick et al. 2011; World Bank, FAO and IFAD, 2008). Rural women are consistently less likely than men to own land or livestock, adopt new technologies, access credit or other financial services, or receive education or extension advice (FAO 2011). In some cases, they do not even control the use of their own time. The FAO 2011 State of Food and Agriculture report estimates that if women had the same access to production resources as men, they could increase yields on their fields by 20 to 30 percent. The FAO calculates that this alone would raise total agricultural output in developing countries by 2.5 to 4 percent, and that this, in turn, could reduce the number of hungry people in the world by 12 to 17 percent, or 100 to 150 million people (FAO 2011).

In addition to this, improvements in gender equality tend to enhance economic efficiency and improve other development outcomes, e.g. family food and nutrition security and education (Fafchamps et al. 2009; Quisumbing and Maluccio 2003). Finally, gender equality is also a development objective in itself: Just as reduction in income poverty or ensuring greater access to justice is part of development, so too is the narrowing of gaps in well-being between men and women (World Bank 2011).

In recognition of the need to address gender disparities in agriculture and harness the capacities, opportunities and empowerment of men and women alike, this strategy aims to leverage the gender potential in maize research for development and to create synergies between maize R4D and gender development goals.

3.1 The relevance of gender for maize R4D

Gender relations are a key aspect of the real-life contexts in which agricultural technologies are deployed. They affect what results can be achieved, how, and for whom. This section provides a number of examples of how existing gender relations can have implications for maize R4D.

Key constraints to maize production include labor shortage, low soil fertility, land degradation, drought, insufficient institutional support, lack of knowledge, access to fertilizer and other inputs, and micro-finance, etc. Depending on the context, these constraints can all have significant gender dimensions (Doss & Morris 2001; Fisher and Kandiwa 2014; Hampton et al 2009; IFAD 1999; Kassie et al. 2014; Morris et al 1999; Ndiritu et al. 2014; World Bank, FAO and IFAD 2008).

Gender stereotypes and social restrictions often exclude women from research and extension programs, and from participation in farmer participatory experiments, demonstrations and field days. When men migrate and women are left in charge of the farm labor, production relations are affected. Women sometimes face several constraints in addressing these challenges, for instance a lack of access to technical knowledge and technologies which can reduce their drudgery and provide additional income (Bellon et al. 2002, Beuchelt and Badstue 2013; Mehra and Hill Rojas 2008). Moreover, women's "triple roles" are well acknowledged in the literature (Momsen 2010, Moser 1993). To the extent that domestic and caring responsibilities may limit their mobility, women often lose out on crucial opportunities for learning and interactions that could stimulate agency and innovation.

Traits and technology preferences

Both men and women maize farmers value grain yield, stress resilience and varieties of different crop cycle duration (Bänziger and de Meyer 2002). However, several studies show that women and men often rate maize characteristics differently and prefer different combinations of traits due to the intended maize consumption objectives, e.g. for market, for own consumption, food security, special dishes, feed etc. (Bellon 1996; Bellon et al. 2000; Bellon 2002; Bellon et al. 2003; Deere 2005; Badstue 2006; De Groote and Kimenju 2008; Hellin et al. 2010, Lunduka et al 2012). Men often prefer high-yielding varieties in view of the associated potential to sell surplus produce. In most cultures, women are regarded as the custodians of family diets. Women's reproductive roles tend to influence their priorities towards a focus on food security and/or varieties that are both palatable and nutritious and that further meet processing and storing requirements (Smale et al 1992; Smale and Heisey 1994, 1997; Smale 1995; Doss 2001; Bellon et al. 2003; Badstue 2006; Hellin et al. 2010). In addition to this, both in Mexico and Southern Africa, women farmers' varietal preferences are also linked to their productive role and represent an important source of female income generation from the artisanal processing and sale of traditional maize products (Doss 2001; Bellon et al. 2003; Badstue 2006).

Other gender differences in preferences, needs and constraints, may apply to other types of technologies (e.g. related to post-harvest storage, labor saving, crop or natural resource management practices) or manifest themselves differently under different circumstances. As documented for instance by Paris and Pingali (1996), the same technology may have a positive impact in one context or for one social group, but not in another context or for another social group (see also Nyanga et al. 2012; Beuchelt and Badstue 2013). Such examples present trade-offs related to agricultural technologies, which in general are associated with positive development impacts. However, it is not necessarily possible to predict how the introduction of new technologies may affect the patterns of labor, resource and land allocation between men and women, or how this, in turn, may influence whether the new technology will be adopted or not, and who will benefit or not. Both intended and unintended impacts

can occur at individual, household and/or community level. The challenge of estimating potential consequences therefore relates both to gender considerations (Doss 2001), as well as to broader aspects of human and sustainable development.

Information and value chains

One of the greatest constraints that poor women farmers face is access to new knowledge and reliable information on new technologies and practices. Information is important to women whether or not they are the final decision-makers on what seed, fertilizer or other inputs to buy. When deferring to their spouses, it helps for the women to discuss and debate from the standpoint of knowledge. On the same note, it is best when both spouses have adequate information.

Maize is also an important cash crop in many contexts, however, with a few exceptions (e.g. Doss and Morris 2001) the literature on maize production and markets has paid limited attention to gender perspectives, and has often failed to identify the differences in constraints faced by women and men as producers, processors, traders etc. and as knowledge seekers and buyers of inputs and services.

Vulnerability and risk:

It has been argued that due to their socially-constructed roles and responsibilities and the various constraints that tend to weigh heavier on women, women are often particularly vulnerable to shocks such as climate variability and change, and depletion of the natural resource base (Alston and Whittenbury 2014). For example, as custodians of household food security in many contexts, women have a lot more at stake when a season fails, because they bear the brunt of managing hungry, malnourished, and sick children.

Female farmers as agents of change

Men and women both make significant contributions in maize-based farming systems and livelihoods, although gender roles in maize cultivation vary greatly across and within regions. On average, women comprise 43 percent of the agricultural labor force in developing countries, ranging from 20 percent in Latin America to 50 percent in Sub-Saharan Africa and East Asia (Quisumbing et al 2014; FAO 2011). Their contribution to agricultural work varies even more widely, depending on the specific crop and activity. By their sheer numbers, these women farmers represent an important potential market that needs to be understood, taken seriously and served. Given recent trends of rural out-migration primarily by men, the proportion of women in farming has either remained stable or increased. Regardless of the variations across regions, women make up a large part of the world's small-scale maize farmers. As such they are important agents for agricultural development and change.

Women maize farmers participate actively in the maize economy through their involvement in the production, post-harvest and processing activities. They are also active participants in decision-making about technology adoption. On one hand some women manage whole farms as female household heads or in the absence of their husbands; on the other, women also manage individual plots within male headed households and, most importantly, women provide significant input into negotiations regarding technology adoption where farming is managed jointly.

4. Beneficiaries of the MAIZE gender strategy

MAIZE is primarily a research for development collaboration, and it is important to consider how research outputs, including from gender research and analysis, will be used by different institutions and social actors in order to reach the expected outcomes for women and men maize farmers. Agricultural research and extension organizations may need to address internal gender awareness and capacity issues before they can be effective agents of change in relation to gender responsive R4D practices, and for this reason gender mainstreaming is a core element in this strategy.

The **ultimate target beneficiaries** of the MAIZE gender strategy are female and male smallholders, and their children, from diverse social groups that are living and working in maize-based farming systems. Data collection approaches will be adapted to ensure that the needs, preferences and constraints of diverse groups inform the technology development and dissemination processes, and that both women and men of different ages and social groups will be able to participate in and ultimately benefit from the research.

The **immediate beneficiaries** include researchers and professionals from the agricultural research and development sector at national, regional and global levels.

Additional beneficiaries and stakeholders include: Policy makers at different levels, value-chain actors, e.g. service- and agro-input providers/manufacturers, seed companies, grain buyers, micro-finance, and maize consumers

5. MAIZE gender impact pathway

5.1 Goal, impacts, outcomes and outputs

The overall goal of the MAIZE Gender Strategy is to increase the quality, efficiency and impact of maize R4D, and to ensure that outputs and outcomes reach and benefit as many men and women as possible, therefore helping to promote equality of opportunity and outcomes between women and men maize farmers.

The expected long-term impacts of the MAIZE gender strategy are: improved livelihoods of smallholder families due to improved equality of opportunity and outcomes between women and men maize farmers in relation to access to and control over assets, inputs and benefits, including improved maize technologies that address the needs, preferences and constraints of both women and men.

The expected outcomes include:

1. Increase yields and reduced vulnerability of female and male maize farmers through increased gender equality and use of appropriate, high quality maize seed and improved management practices developed with special consideration of their needs and preferences.

2. Increased gender responsiveness of maize R4D partners reflected in gender-responsive business models and practices; and inclusive maize-related value-chains and institutional arrangements that increase gender and social equity in the distribution of benefits from sustainable intensification and increased market integration.

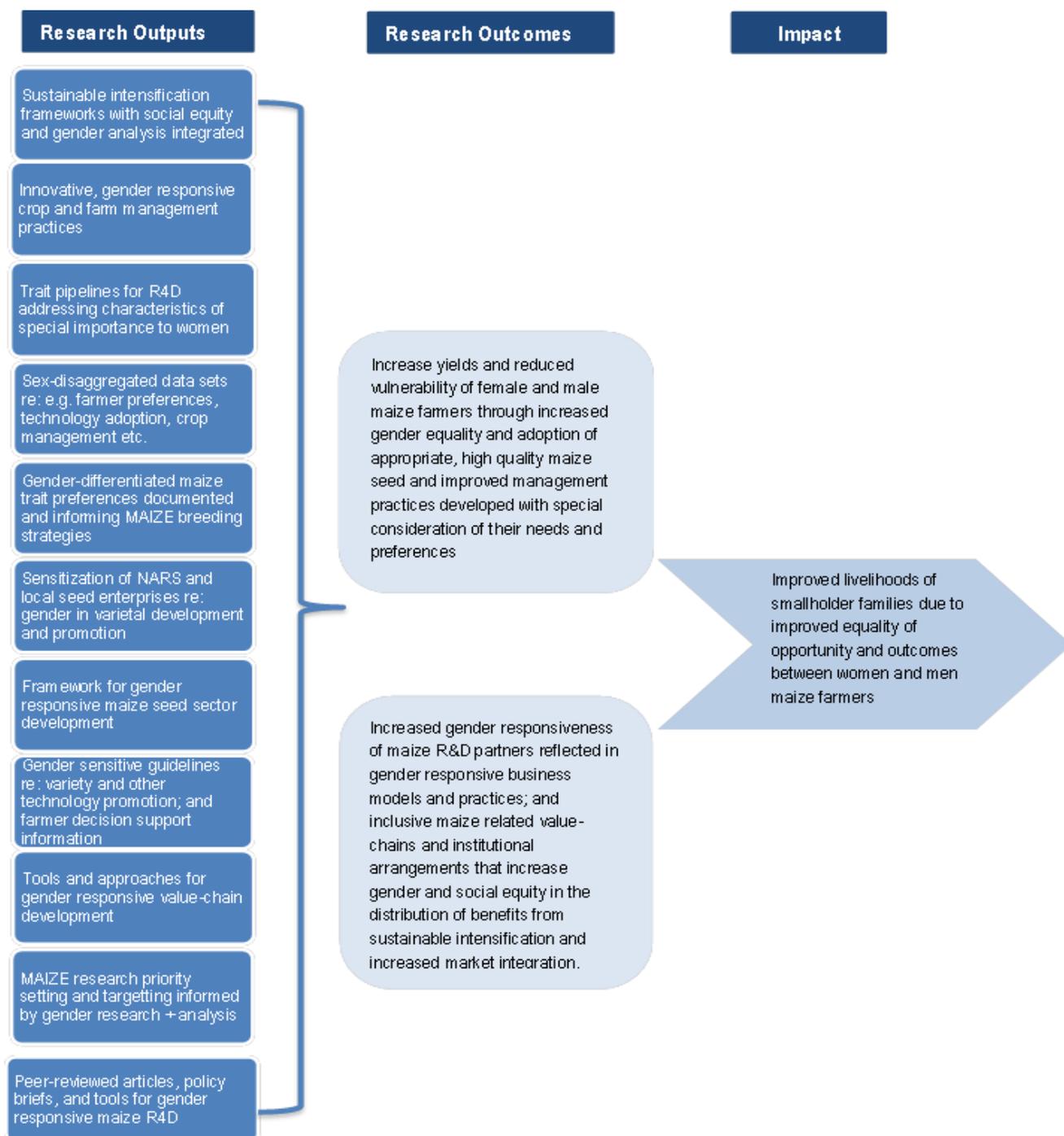
The research outputs that contribute towards the expected outcomes are based on gender analysis and gender research¹, carried out as part of the MAIZE Flagship Projects 1-5. The research outputs include the following:

- MAIZE research priority-setting and targeting informed by gender research and analysis.
- Integration of social equity considerations and gender analysis in sustainable intensification frameworks and approaches.
- Innovative, gender-responsive crop and farm management practices.
- Sex-disaggregated data sets related to, for example, farmer trait and variety preferences, technology evaluation, training and capacity building, technology adoption, crop management, etc.
- Gender-differentiated preferences for maize traits documented and informing MAIZE breeding strategies.
- Trait pipelines for R4D that address characteristics of special importance to women maize farmers and consumers.
- Guidelines for gender-sensitive communication related to variety promotion and farmer decision support information.
- Sensitization of NARS and local seed enterprises regarding the rationale for a gender perspective in varietal development and promotion.
- Framework for gender-responsive maize seed sector development.
- Tools and approaches for gender responsive value-chain development.
- Peer-reviewed journal publications, policy briefs, and guidelines and tools for gender responsive maize R4D.

A summarized graphic representation of the impact logic is presented in figure 1 below. The integration of gender analysis and gender research in each of the five MAIZE Flagship Projects is described in more detail in section 6.

¹ Following the CO definition (REF), *gender analysis* refers to the identification of differences between men and women with respect to their vulnerabilities, assets, capacities, constraints and opportunities using quantitative or qualitative methods. Gender analysis can be integrated into agricultural topics which are the main focus of CRP research, such as plant breeding. In contrast to *gender analysis*, *gender research* refers to studies in which gender and gender relations are the main research topic.

Figure 1: The MAIZE gender strategy impact logic



6. Integration of gender analysis and gender research perspectives in MAIZE Flagship Projects

Gender and other social inequalities are an important factor in low production levels, inefficient marketing and limited uptake of innovations. Empowerment – or at least adequately considering the needs, preferences and constraints of women and men of different age and social groups – is key to sustainable productivity and food security gains. To ensure that interventions are gender-responsive and socially equitable – and to avoid situations in which apparently technically superior innovations exacerbate existing gender inequalities – research and analysis is needed on how gender and other social inequalities interact with technological change and development.

Five general categories of research questions or themes set the overall stage for gender analysis and gender research in CRP MAIZE:

- a) What are male and female farmers needs and preferences with regards to maize germplasm and other maize-related technologies
- b) What are the constraints that male and female maize farmers face, and what potential/assets do they have? How is this different for male and female farmers?
- c) What is the capacity for gender-responsive technology generation and dissemination among research and development partners, including advisory services, input and service providers, and seed enterprises?
- d) How are the products of maize R4D used? Who controls the benefits?
- e) What is the distribution of adoption? What are the impacts of maize R4D, who benefits from them, and how?

The prioritization and means of addressing these aspects depends on various issues, including the specific Flagship Project in question, the general socio-cultural, agro-ecological and economic context, and the resources available. The following presents an overview of how MAIZE plans to address researchable issues related to gender in each of the five Flagship projects. It should be noted that certain approaches will be used in several Flagship Projects, hence some elements of repetition may appear. Similarly, though not explained in detail for every Flagship Project, the overall principle applies that, where relevant, findings from one Flagship Project may also feed into other Flagship Projects and vice versa.

Flagship Project 5 focuses on socio-economic aspects of maize-based systems and maize research, including strategic socio-economic research, which also encompasses gender research and mainstreaming. Though elements of gender analysis are conducted in and/or inform all Flagship Projects, it therefore makes sense to begin the following overview with Flagship Project 5, followed by Flagship Projects 1-4.

FP5: Inclusive and profitable maize futures:

Gender-responsive objective:

To strengthen the evidence base on gender in maize-based systems and livelihoods; and ensure that foresight and targeting, adoption- and impact studies, as well as maize related value chain development interventions, are informed by a gender and social inclusion perspective.

Flagship 5 focuses on foresight analysis, research targeting and prioritization. Adoption and impact analysis, the use of gender analysis and strategic gender research in relation to maize-based systems all feed into this. Flagship 5 furthermore seeks to develop inclusive market opportunities for smallholder maize farmers that improve gender equity in the distribution of benefits from increased commercialization, including through novel value-addition opportunities. Relevant research questions include:

- What are the key social and gender-differentiated impacts of maize R4D?
- How do men and women benefit from improved maize technologies? What contextual factors influence this and how do they affect women and men differently?
- How can maize R4D contribute to strengthening gender equality in agriculture? What types of investment will particularly benefit poor women maize farmers? And how can maize R4D engage with male and female youth to harness agriculture and food production for the future?
- How might current changes in production relations in rural communities (e.g. out-migration, feminization of agriculture) affect the future of smallholder agriculture, and what are implications for agricultural R4D?
- What factors affect technology adoption (resources, benefits, decision-making, values)? Does this vary for different types of technologies, and/or for men and women?
- How do intra-household gender dynamics affect the articulation of demand for and adoption of mechanization and other technologies/practices? And what have been the consequences of household adoption for different women?
- How do gender norms and agency advance or impede the capacity of individuals to learn about, try out and take up new agricultural technologies? And how do new agricultural technologies or practices affect gender norms and agency across different contexts? Under what conditions can they do harm and under what conditions can they benefit different social groups?
- How are gender norms and women's and men's agency changing, and under what conditions do these changes catalyze innovation and lead to desired development outcomes? What contextual factors influence this relationship?
- What is the place/role of maize farming in the livelihoods of different households (including as agricultural laborers)? What are the roles of men, women, girls and boys with regards to activities related to maize production, including post-harvest management and processing? What is the labor intensity of different activities in the farming cycle for different members of the household? And what are options to reduce labor intensity/burden?
- What are promising strategies for equitable inclusion of women and men in maize-related value chains? What types of arrangements can improve gender equity in the distribution and control over benefits from increased market participation?

A gender and social inclusion perspective forms part of the overall conceptual understanding of the socio-cultural and economic contexts of maize-based farming systems and livelihoods in Flagship 5. Gender work in Flagship 5 includes both gender analysis, for example as part of foresight analysis, adoption studies, impact assessments and value-chain development, as well as gender research, where gender and gender relations are the main topic of research.

Gender analysis requires relevant and valid data pertaining to the perspectives, needs, preferences and constraints of both women and men. Hence, in relation to adoption studies, impact assessments and value chain-related research, whenever relevant research questions, survey instruments and approaches take gender and social inclusion aspects into consideration. Furthermore, in order to strengthen the basis of datasets for gender analysis, Flagship 5 has standardized sex-disaggregation in all people-level data collection and analysis, and will emphasize the recruitment of female enumerators for survey data-collection with female respondents. Sex-disaggregation as a standard survey practice has also been included in the staff Key Performance Indicators.

In line with the ambition to promote equality of opportunity and outcomes between resource-poor women and men maize farmers, and thus overall strengthen the social equity of maize R4D impacts, Flagship 5 will systematically integrate a gender and social equity perspective in all ex-ante and ex-post impact assessments.

In order to expand the current evidence base on gender and maize-based systems, and address strategic questions pertaining to the implications of gender dynamics in relation to development of maize-based systems, Flagship 5 also undertakes strategic gender research, which feeds into and informs MAIZE research priority setting and targeting. Ongoing strategic gender research includes:

Comparative study of gender norms and agency in maize-based systems: This research forms part of a global, cross-CRP comparative research initiative on gender norms and agency in agriculture and natural resource management. The study research design is informed by a gendered agency-opportunity structure conceptual framework, and the analytical approach gives primacy to local men and women's own understandings, interpretations and experiences with innovating in agriculture and natural resource management. Drawing on maximum diversity sampling principles, the individual village-level cases are purposely selected to ensure strong variance on two dimensions theorized to be important for outcomes: i) economic dynamism, and ii) gender gaps in assets and capacities. A standardized package of data collection instruments is being applied in each research village, and includes same-sex focus groups with youth and adults, key informant interviews, and in-depth semi-structured interviews. MAIZE has pledged to undertake minimum 20 cases in maize-based systems under this joint strategic gender research initiative.

Gender matters in farm power - A gender analysis of small-scale mechanization in maize farming systems in sub-Saharan Africa: This special study is implemented by the Royal Tropical Institute (KIT) under the CRP MAIZE Competitive Partner Grant Scheme. The study seeks to identify constraints and opportunities for active participation and benefit sharing by male and female farmers, including youth,

in small-scale farm power mechanization in Sub-Saharan Africa, specifically in Ethiopia and Kenya. The gender analysis proposed for this study is based on a relational concept of gender, and differentiates between different types of households engaged in maize farming. The study is expected to conclude in early 2015.

Gender analysis of improved grain storage technologies: This special study is implemented in relation to a specific bilateral research project under MAIZE. The study focuses on gendered constraints and opportunities in relation to post-harvest storage technologies, including assessment of gender roles in relation to post harvest storage; men's and women's technology preferences, issues of ownership and control, awareness and access to technology and information.

FP1: Sustainable intensification of maize-based farming systems:

Gender-responsive objective:

To ensure that sustainable intensification of maize-based systems and livelihoods take gender and social disparities into account and delivers positive benefits to both men and women of different social groups.

Maize-based systems are complex and dynamic and evolve with important drivers of change, including the feminization of agriculture, demographic change, climate change, resource depletion, and diverse socio-cultural factors. To make progress, it is essential for MAIZE, as a global program, to embrace the agro-ecological and social heterogeneity between geographies and at nested spatial scales, and to prioritize investments and thematic areas. Entry and end points for sustainably intensifying maize-based systems hence differ between contexts. To achieve desired outcomes and positive development impacts in the lives of male and female maize farmers and their families, innovations and technologies as well as their dissemination pathways must be well tailored and adapted to the local contexts to ensure positive outcomes.

Intensification, environmentally-friendly or conventional, is linked to the question of resources, including natural and financial resources, but also knowledge, technology and labor as well as social and political capital. Intensification implies changes in resource management and increases in resource use, with the exception of land, for example in the form of inputs, knowledge, technology and/ or labor. From a gender and social equity perspective, access to and control over resources is therefore a fundamental issue to address.

By their sheer numbers, women and youth present an important potential for agricultural development that needs to be understood, taken seriously, and be served. However, acquiring new knowledge, experimenting with market participation, new institutional arrangements, or the adoption of new technologies and practices involves social interaction with different social actors, may require time away from home, and financial or labor investment. Lack of opportunity and resources, rigid social norms and traditions, as well as domestic and caring responsibilities are factors that can limit women's and youth's abilities to engage with new opportunities for agricultural innovation. Important research and analysis questions related to gender and sustainable intensification of maize-based farming systems include:

- What are the differences between male and female small-scale maize farmers' access to and control over production means and resources? How does this influence their technology choices?
- How does the technology adoption and productivity of male and female maize farmers differ? What are the factors underlying this and how can this be characterized in ways that can enhance the targeting of maize R4D?
- What types of institutional arrangements and business models can enhance the ability of poor women farmers and marginalized groups to access and benefit from more efficient and labor-saving technologies?
- How do social and gender norms constrain/enhance individual ability to engage in agricultural innovation processes? And what are effective measures to address barriers to social inclusion in technology development and dissemination?
- What are the potential trade-offs of sustainable intensification technologies from a gender and social inclusion perspective? And what approaches can help mitigate these?
- How can improved crop and soil management technologies enable male and female farmers in maize-based systems to reduce risks and vulnerability?
- What is the capacity for social inclusion and gender responsive development practice among R&D partners? What is the capacity for social inclusion and gender responsive business development among input- and service providers? Is the capacity building of R&D partners reflected in the greater incorporation of female and male farmers' perspectives in maize technology development and dissemination?

Women farmers and entrepreneurs constitute a group with significant potential for development and a core clientele for knowledge, input, and service providers, but it must be considered that they may have distinct needs, preferences and constraints. In order to address this in the R4D process, Flagship 1 will integrate gender analysis in the innovation systems work with R&D partners and male and female farmers. As part of this process, MAIZE will promote that partners for innovation and scale-out systematically embed gender-relevant insights into their business models and training programs, to help women gain more access, more control and enable their use of technology, knowledge etc. Technology generation and testing, including of mechanization and diversification options will follow gender-responsive and gender-transformative approaches, and in parallel with this we will leverage existing partnerships with social networks for collective action and self-help groups for understanding and reaching farmers, especially women farmers and farmers from disadvantaged social groups.

FP2: Novel tools, technologies and traits for improving genetic gains and breeding efficiency:

Gender-responsive objective:

To ensure that perspectives of male and female end users are taken into account in up-stream targeting and decision making.

Flagship 2 focuses on novel, up-stream tools and approaches for genetic gain and breeding efficiency, including the indexing of native trait variation in maize, trait pipeline development, breeding informatics and advanced phenotyping tools. As such the focus of this Flagship appears far removed from the farmer and consumer interface. Even so, although the relevance of the gender dimension may seem to grow as we move further down-stream in the technology development process, the concern with end-user needs, challenges and preferences remains pertinent at the upstream level. This is often where key decisions regarding overall direction and priorities of research are made, which, in turn, have bearing on what (and whose) issues will be addressed. Relevant gender research and analysis questions therefore include:

- What priority trait categories are particularly relevant for key beneficiary groups, and are they related to gender?
- How can research on the gendered nature of maize production leverage and add value to the analysis of native trait variation and trait pipeline development?
- How can down-stream gender research and analysis findings in the technology development continuum inform up-stream targeting and decision making?

In the first phase of CRP MAIZE, gender analysis has already informed the selection of priority trait categories to be further investigated. MAIZE will build on this and continue to prioritize traits that have been emphasized by women farmers, including drought tolerance (e.g. Bänziger and de Meyer 2002); post-harvest and processing characteristics (e.g. Smale et al 1992; Smale & Heisey 1994, 1997; Bellon et al 2000; see also: Bellon 2002).

In addition, under Flagship 2 MAIZE will initiate trait pipelines for R4D on novel trait variation and molecular pipelines that address nutritional quality, antioxidants, and other issues, which in some cases are of particular importance to women. This may also include herbicide tolerance (for reduction of drudgery). Some of these have already been established, for example high beta-carotene, high lysine and specialty traits of particular cultural or income related importance to certain groups, such as blue maize and other specialty maize varieties with strong cultural importance in Mexico, representing an important source of income generation, especially for women, in the significant Mexican specialty foods markets.

To complement the above, gender analysis findings generated in Flagships 3, 4 and 5 will continue to inform overall priority-setting in Flagship 2. Finally, professional capacity building events organized under Flagship 2 will put special emphasis on participation by women and young scientists.

FP3: Stress-resilient and nutritious maize:

Gender-responsive objective:

To document and understand gender-differentiated preferences for specific traits in maize germplasm, and the factors that influence them, as well as the implications hereof in relation to priority setting and targeting of maize breeding strategies.

Flagship 3 develops elite, abiotic and biotic stress-tolerant maize germplasm with the potential to improve yield gains in poor farmers' fields in marginal and stress-prone environments, as well as the overall resilience, productivity and commercial competitiveness of the maize-based production systems of resource-poor smallholder farmers in sub-Saharan Africa, Latin America and Asia. In addition to addressing abiotic and biotic stress tolerance, an important component of this Flagship is the incorporation of specific quality traits that address the needs and preferences of different farmer and consumer groups and markets. Many of the farmers targeted by Flagship 3 are women. In order to meet its gender responsive objective, Flagship 3 will address the following research questions:

- What are the needs, preferences and constraints experienced by men and women maize farmers with regards to maize varietal traits? In what ways are these similar for men and women; and in what ways are they different?
- How, and to what extent are the needs, preferences and constraints of both female and male farmers considered in the improved maize germplasm development process?
- Apart from production constraints, what other traits or combinations of traits related to quality do farmers and consumers in different contexts, or from different social groups, prioritize? For example, what are the post-harvest-, processing-, consumption-, nutrition- or fodder-related traits that men and women demand?
- Are male and female farmers equally able to access, use and benefit from these technologies? What are other factors that may influence farmers' ability to access, use and benefit from these improved maize varieties? And do these factors affect men and women small-scale farmers in the same or different ways?

The importance of farmer feedback at various stages of the technology development process is broadly recognized by MAIZE partners and an established practice of many. On-farm trials and demonstrations, whether farmer-managed or jointly managed by farmers and researchers, and related field-days are useful arrangements to systematically capture the trait and varietal preferences of women and men farmers in order to expand the evidence base and incorporate their feedback in breeding programs/product advancement. An excellent example of how the perspectives of female farmers have influenced maize breeding priorities towards the preferences of African women farmers is Melinda Smale's research on the importance of maize flint quality (Smale 1995; Smale et al 1992). Similarly the groundbreaking work by CIMMYT and partners on drought-tolerant maize was, and continues to be, fuelled by strong demand from African smallholder maize farmers, especially women.

Participatory Varietal Selection (PVS) is a standard procedure for many MAIZE partners. The integration of gender in this will be strengthened further, including by the ambition of increasing the proportion of female participation in PVS events and by standardizing sex-disaggregation in data collection and gender analysis related to farmer PVS feedback. In addition to improving the gender balance of participants in PVS events, MAIZE will also take into account the representation of different age groups and social groups as relevant (e.g. farmers for whom both grain and feed is important etc.).

Building the capacity of NARS and small and medium seed enterprises, in particular female and young professionals and scientists, to breed for quality traits and stacking of traits, is an important component of Flagship 3, which can significantly increase the scope of value-addition for female and male small-scale maize farmers – assuming that the specific quality traits, or combinations of them, meet the demands and priorities of female and male clients. Building on the sex-disaggregated PVS data and additional research findings on farmer preferences and adoption from Flagships 4 and 5, MAIZE will therefore use these capacity building events as a catalyst to inform and sensitize participants, including the next generation of seed sector decision makers, to the gendered dimensions of varietal development.

FP4: Aligning with and strengthening maize seed systems for effective product delivery:

Gender responsive objective:

To improve men and women small-scale farmers' access to and benefits from quality seed of improved maize varieties with combinations of traits that meet their needs and preferences.

Maize seed is a core input in maize-based farming systems and livelihoods. To the extent that both men and women grow maize, it is reasonable to strive for equal opportunities for adoption, but how can we boost the levels of adoption of improved maize seeds in ways that bridge existing gender gaps in adoption? To enhance the understanding of how women and men small-scale farmers engage the seed retail market, MAIZE will address the following research questions:

- Under what conditions do women and men small-scale farmers buy maize seeds? Which kinds of maize seeds, what quantities and what frequency? What factors do they consider when acquiring seed? What are the challenges they face in relation to acquiring improved maize seed. In what ways and to what extent do these aspects differ between men's and women's maize seed acquisitions?
- Are there changes in the way women engage with the seed retail sector? Or in the way decisions are made on seed adoption within households? What drives these changes?
- How do small and medium size seed companies and agro-dealers perceive and segment their markets? How do they address gender as a customer attribute? What constraints are faced by agro-dealers and by women farmers?
- How do farmers, and especially women farmers, access information about seed? What are the barriers they face? What are key issues for developing gender-sensitive variety promotion and decision support information?

Research has been initiated in the first phase of MAIZE to address several of these questions. This includes a special study in Kenya to examine patterns in men's and women's engagement with maize retail outlets and how they vary across space. The study also assesses the combination of inputs acquired by men and women and captures the nature of interactions between retailers and male and

female customers. Another example is a pilot study in Nigeria to assess the level of gender capacity and awareness among seed companies. The study investigated strategies used by seed companies to segment and target male and female customers. The study revealed that all seed companies do not explicitly pay attention to gender – either in their company policies, or in their operational strategies. A follow up study is planned for Eastern and Southern Africa for 2015.

The aim for FP4 is that all participatory varietal testing and selection will involve both women and men small-scale farmers and, where relevant, draw from different social groups. MAIZE will increase the proportion of female farmer participation in PVS. Similarly, MAIZE will increase the proportion of demonstration plots and on-farm trials hosted by female farmers and people from disadvantaged groups. Both in PVS, on-farm testing and farmer field days, feedback from men and women participants will be collected using standard principles for sex-disaggregated data collection and gender analysis, and the results of these analyses will feed into targeting and priority setting.

To support the ambition of reaching 50 percent female participation in PVS activities, on-farm trials and demonstrations, MAIZE will advocate for increasing the recruitment and use of female field assistants, not just related to farmer field day events, but for all farmer-level interactions.

As part of strengthening the capacity of the local seed sector, MAIZE will work with local small- and medium-size seed companies, agro-dealers and women and men farmers to carry out research on gender as a customer attribute. The findings from this research will be used to inform private and public seed sector interventions, and to develop examples of gender-sensitive variety promotion and decision support information. In addition, as part of the seed production and seed business management courses to enhance the capacity of small- and medium-sized seed enterprises and National Seed Authorities, the business case of gender-sensitive variety promotion and decision support information will be highlighted, and the participation of both women and men employees of emerging local seed enterprises will be promoted.

7. Linking gender research and analysis to MAIZE institutional framework

The gender analysis and research outlined in the previous section will generate knowledge relevant to achieving gender-responsive outcomes in MAIZE; however, this potential is not automatically leveraged across MAIZE activities and MAIZE partners. To realize the potential of the gender analysis and the gender research it is of critical importance that MAIZE research management procedures and the MAIZE impact pathways systematically consider and, if relevant, incorporate the findings related to gender in maize-based systems and livelihoods.

In addition to the application of gender analysis and the implementation of gender research, MAIZE will promote the consideration of gender issues as an integral part of formal research management and procedures. Accompanied by strengthening of capacity and technical support in the area of gender, this

in turn facilitates that new MAIZE research for development projects explicitly consider gender in relation to the specific research in question.

Therefore, the integration of gender into the RMF along with additional enabling, institutional circumstances for systematic gender consideration, will support the integration of gender analysis into the research project portfolio and the related budgeting and funding aspects. At the same time, to further strengthen the knowledge base and inform MAIZE priority setting and targeting, gender research will be carried out to address issues of strategic importance. Ultimately, all of this will lead to more gender-responsive maize research for development, greater and more equitable benefit sharing and contribute to closing the gender gap in maize-based agriculture.

Due to the enhanced institutional frameworks and procedures and the strengthened gender awareness of staff and partners, the evidence base on gender in relation to maize research and maize-based livelihoods will expand, the number of gender-responsive R4D initiatives under MAIZE will increase significantly, and the proportion of female farmers who provide feedback to participatory research activities will grow substantially. Together, these changes inform the research process as well as the research targeting and priority setting. It is expected that this will lead to better targeting of research outputs and dissemination and, in turn, in a longer term outcome perspective that will stimulate increased and accelerated adoption of improved maize technologies by female as well as male farmers.

The integration of gender in MAIZE is conceived as a process of continual improvement, in which research design and practice, and research management frameworks and procedures are complement and mutually support each other. The scope of the strategy includes: **I)** Integration of gender analysis and gender research in maize R4D (section 6 above); and **II)** Integration of gender in key maize R4D management frameworks and procedures. The relation and synergy between these two twin-tracks is described below in sub-sections I and II.

As gender analysis capacity, and frameworks and procedures that support and encourage gender responsive R4D are strengthened, this will influence research practice and further catalyze the integration of gender analysis in maize research projects and FP portfolios. As a result, the proportion of gender responsive and gender transformative projects in the MAIZE R4D portfolio is expected to increase. Eventually, the main emphasis will be on gender research and analysis in maize research projects and FP implementation, while a moderate emphasis on enabling frameworks will continue to be required in order to run and maintain the institutional structures and resources for gender integration and related technical backstopping. This shift in focus is illustrated in figure 2.

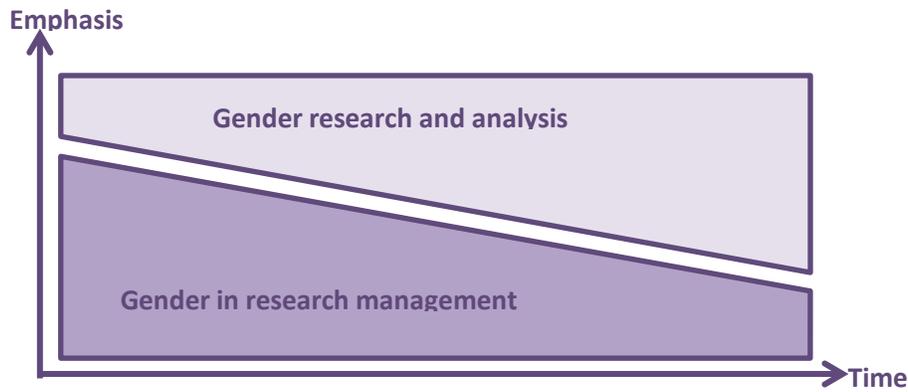
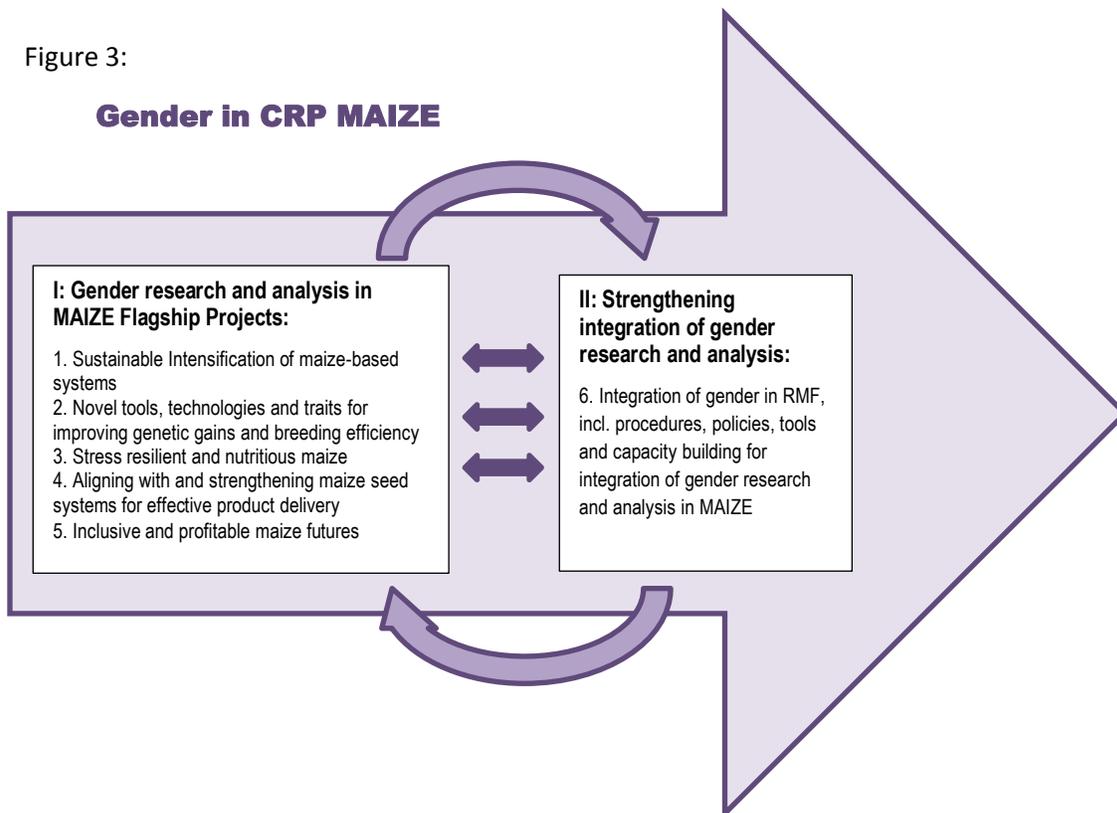


Figure 2: Integration of gender research and analysis in MAIZE is conceived as a process of continual improvement in which the functions of research design & practice, and research management frameworks & procedures complement each other.

As results and lessons learnt are generated in gender analysis and research implementation, these will provide feedback to programmatic learning processes and contribute to the further development and adjustment of the programmatic and institutional frameworks, which, in turn, will inform the next generation of research projects and adjustments in the diverse FP implementations. As these dynamics progress and gain traction, the integration of gender in MAIZE continues to expand and improve. The complementarity of this overall approach in MAIZE is illustrated in figure 3 below.

Figure 3:

Gender in CRP MAIZE



I) Gender research and analysis:

In the process of integrating gender research and analysis in MAIZE, the concept of gender is used as an analytical tool to strengthen the relevance and targeting of maize R4D and enhance development impacts. On one hand, gender analysis is applied as part of other technical research such as socio-economic surveys or maize breeding, as explained in section 6, to capture differences in the perspectives and assets of male and female farmers from different social groups, and feed this into the technology or policy development process. On the other hand, also described in section 6, this is complemented by gender research on strategic issues to further expand the knowledge base concerning gender in relation to maize-based farming and livelihoods to inform and deepen the relevance of other research themes, as well as overall priority setting and targeting, in order to better address gender constraints related to maize-based systems development.

II) Mainstreaming gender in the MAIZE Research Management Framework

In order to take stock, and achieve a rigorous input to the process of strengthening the integration of gender as an analytical tool for enhanced targeting and impact of research for development under MAIZE, the CRP conducted a comprehensive programmatic gender audit in 2013. The audit applied a participatory, interactive and iterative approach and involved staff at different levels from CIMMYT and IITA, project teams, partners and beneficiaries. The implementation phase took place from January to July 2013. The methodology included Key Informant Interviews, Focus Group Discussions, specific project case-studies in Asia, Africa and Latin America, an online staff survey, participant observation and document reviews. The findings of the GA were discussed and validated in a collaborative workshop which included the participation of CRP coordinators, senior management, gender experts and biophysical scientists. Key recommendations of the Gender Audit include:

- Mainstream gender in institutional and programmatic frameworks and procedures
- Develop and implement mechanisms to support the integration of gender in research project design, budgeting and M&E
- Establish a gender equality competency framework and invest in gender capacity and awareness building to support the development of required staff gender equality competencies by level and area of work

The following outlines how MAIZE plans to address the recommendations arising from the gender audit.

The Research Management Framework is based on best practices from the fields of project management and monitoring and evaluation, and applied to international maize research for development.

Institutional frameworks and procedures have important roles in clarifying, streamlining and guiding the research management process throughout the project cycle. Mainstreaming gender into key frameworks and procedures can thus help actively promote the consideration of gender issues in relation to the research in question, and ensure that such issues are addressed, whenever it is relevant and appropriate. A key element in this regard is the establishment of procedures to ensure that the

relevance of gender is considered for new research projects. If, for example, gender is not relevant to the research in question, the proposal simply moves on to the next step in the project processing. For proposals where issues relating to gender are identified and need addressing, the gender screening procedure will serve as a quality check in terms of the approach and specific measures taken, appropriate output and outcome formulation, as well as the related funding requirements in the project budget. This in turn will constitute the foundation for follow-up on the integration of gender in implementation, as well as in output and outcome monitoring. Basic guidelines for scientists and research teams with regards to incorporation of gender concerns in project design have been elaborated, and 26 MAIZE scientists received initial training on their use in December 2013.

To further encourage and strengthen the incorporation of gender consideration in project design and implementation a series of policies and practical guidelines for their implementation in maize research for development will be developed. This will entail the formulation of a gender-in-research policy for MAIZE, as well as the development of practical support tools to enhance gender integration in research; for example a protocol for gender disaggregated data collection and analysis (in progress), and guidelines for social inclusion in participatory research activities.

To strengthen the capacity for gender integration in MAIZE a gender equality competency framework will be developed, mapping out the minimum level of gender-related Knowledge, Attitudes and Skills (KAS) expected of MAIZE staff positions and areas of work. The competency framework will be accompanied by a gender equality capacity strengthening program to support the development of required staff gender equality competencies by level and area of work. The modular program will incorporate different and complementary learning approaches to allow individuals to develop their own learning strategies and be responsible for achieving minimum competencies. Implementation of the gender equality capacity strengthening program will be subject to resources availability.

MAIZE is represented in the CGIAR Gender and Agriculture Research Network by the Gender Specialists of CIMMYT and IITA. The Gender and Agriculture Research Network constitutes a forum for identifying and taking forward strategic issues related to gender analysis and gender research across the CRPs, in addition to identifying needs and opportunities for cross-CRP collaboration in research and capacity strengthening and ways of addressing these. The network operates as a virtual community and meets once or twice yearly.

In summary, the successful gender mainstreaming of the RMF will lead to maize research projects with gender-responsive, or even gender-transformative approaches, which in turn will lead to progress with regards to: Increased access to and benefits from improved maize technologies by men and women alike; greater incorporation of both male and female farmers perspectives in maize technology development and diffusion; and ultimately, increased equality of opportunity and outcomes between female and male maize farmers.

8. Monitoring & Evaluation

Monitoring and Evaluation (M&E) of the gender strategy for MAIZE is an integral part of the M&E of the MAIZE CRP Research Management Framework (RMF) which covers:

1. Gender screening of all new MAIZE project proposals
2. Planning of gender-related activities and assignment of clear responsibilities for execution and reporting
3. Monitoring of gender-related activities across all projects in MAIZE
4. Reporting of gender-relevant Key Performance Indicators
5. Assessment of progress at staff, project and CRP level, and if relevant adjustment of plans according to lessons learned.
6. Adoption and impact assessment studies

All MAIZE work is project-based and the M&E work is initiated with the incorporation of gender in the project plans as described above. New projects are formulated in the Research Management System (RMS) and the socioeconomics program manager (PM) is automatically alerted on all new projects and responsible for the initial gender screening of the projects. If specific gender analysis needs to be undertaken the program manager contacts the relevant staff with gender analysis competencies (see table below). In this way the incorporation of gender is systematically considered in all new projects under MAIZE.

Once a project is funded the detailed work break down structure is defined, and the planned activities are assigned to the person responsible in the Research Management System. This person is also responsible for providing progress updates on the task and summary task level. The progress reported is then aggregated up to the project level and then up to the Cluster of activity, Flagship Projects, and CRP levels. The physical progress of the projects is in the RMS and also linked to financial management, which allows us to identify if the physical progress is behind the financial execution, which helps to solve problems at an early stage.

As W1 and W2 funding for MAIZE only make up some 15 percent of the total budget, most of the gender work in this strategy is carried out as part of bilaterally-funded projects, and the activities are planned within these projects. Being able to track progress on the 150 bilaterally-funded projects is an informational challenge; however, the research management system is being revised in order to be able to easily identify projects and activities that are of particular interest to the gender strategy. Additionally, the activities directly managed under the gender unit and funded by W1 and W2 are managed as a separate project within the RMS.

The Research Management System is also the main platform for registration of a series of Key Performance Indicators. A measure for sex-disaggregation has been integrated in some of the KPIs and currently includes the collection of the number of:

- a) Maize lines with characteristics valued by women farmers
- b) Technologies evaluated with explicit relevance for women farmers
- c) Trials conducted with women farmers
- d) Demonstrations conducted with women farmers
- e) Technologies demonstrated with explicit relevance for women farmers
- f) Surveys with sex-disaggregated data

This information is entered by all research staff and is used in staff evaluations, which creates a strong incentive for staff. The KPIs are also used for institutional reporting, for example to donors.

All the elements in the Research Management System are used by management at different levels to systematically assess the progress of staff activities, project plans, and at the overall strategic level. The M&E system in MAIZE has considerable advantages as it aligns staff incentives with both project plans and the overall strategy, and it also reduces the need for duplicated reporting at different levels.

A final element in the MAIZE M&E work is the adoption studies and impact assessments where the uptake of the MAIZE technologies is investigated. This is a field with a long research history and the very considerable impact of maize research has been documented. Nevertheless, most of the studies have not considered gender aspects in depth, and this will have to be addressed more thoroughly in future adoption studies and impact assessments under MAIZE.

9. MAIZE gender budget strategy

MAIZE is the CRP with the lowest level of funding from W1 and W2, and 85 percent of total funding is sourced from bilateral projects. Most CRPs have a W1 and W2 funding level around 45 percent, which implies that they have a larger degree of freedom in allocating resources for example to gender work, and that it is easier to carry out a coherent strategy. In the case of MAIZE the strategy is dependent on an annual budget from 150 separate grants, which represents a considerable managerial challenge. The disparate sources of funding create a large level of uncertainty, and it is difficult to project future investments in a specific topic such as gender.

In order to be able to estimate the investments in gender research and mainstreaming in a systematic and transparent way, and in consultation with the CO Senior Gender Advisor, CRP MAIZE has adopted the DAC Gender Marker developed and tested by the UNDP (see annex 2).

Very considerable investments in MAIZE are related to gender, and the mainstreaming strategy outlined in the present strategy document has significant potential to achieve large impacts at very limited additional cost. This distribution of investments is one of the reasons why the MAIZE gender strategy operates on a dual and complementary set of actions: Gender analysis and research is carried out in the largely bilaterally-funded projects, and the outputs from this work are used and the outcomes multiplied via the institutional mainstreaming processes.

Gender remains a relatively new area of research within MAIZE, and the associated bilateral fundraising is still at an initial stage. Nevertheless, awareness-raising among Project Leaders has increased the number of requests for gender inputs in new project proposals, and the RMS project cycle also contributes to more effective gender screening in all new projects.

10. Organization of gender integration in MAIZE

The overall integration of gender in MAIZE is led by CIMMYT’s strategic leader for gender research and mainstreaming, who forms part of the CIMMYT Socio-Economics Program (SEP) and reports to the Director of SEP who, in turn, forms part of the MAIZE Management Committee. In a similar way, as a co-lead center, IITA shares responsibility for the integration of gender in MAIZE through the contributions of the IITA Lead Gender Specialist.

To ensure alignment with the gender strategy, staff for whom gender is an important part of their work form part of the gender unit coordinated by the strategic leader for gender research and mainstreaming. As coordinator of the gender unit, the strategic leader for gender research and mainstreaming manages the portion of the budget specifically related to strategic gender research and gender specialist activities, and is responsible for providing technical support to Project and FP Leaders and other researchers with respect to gender integration, awareness and gender analysis capacity strengthening; as well as guidance and recommendations with regards to strategic gender research and targeting.

The incorporation of gender in planning, implementation and reporting at the individual project level follows the steps and procedures laid out in the Research Management Framework, and is the responsibility of the Project Leader and, ultimately, the respective Program Director. When possible, gender concerns in project implementation are addressed via partner expertise. Gender integration in processes at the FP and CRP level is the responsibility of FP leaders and the CRP manager.

Table 1. MAIZE staff with gender analysis competencies

No.	MAIZE Staff	Qualification	Discipline/Field
1	ABDOULAYE, Tahirou	PhD	Economics
2	ALI, Akhter	PhD	Agricultural Economics
3	ANDERSON, Jens	PhD	Rural Development Sociology
4	ARYAL, Jeetendra Prakash	PhD	Agricultural Economics
5	BADSTUE, Lone	PhD	Rural Development Sociology
6	BERRESAW, Menale Kassie	PhD	Agricultural Economics
7	BÖBER, Christian	PhD	Agricultural Economics
8	CAMACHO, Carolina	PhD	Rural Development Sociology
9	CHRISTIANSEN, Irene	PhD	Plant Physiology

10	DE GROOTE, Hugo	PhD	Economics
11	DEBELLO, Moti Jaleta	PhD	Agricultural Economics
12	ERENSTEIN, Olaf	PhD	Agricultural Economics
13	FISHER, Monica	PhD	Impact Assessment Economics
14	HELLIN, Jonathan	PhD	Social Geography
15	JENA, Pradyot Ranjan	PhD	Agricultural Economics
16	KAHAN, David Gerald	PhD	Agri-Business Development
17	KANDIWA, Vongai	PhD	Development Sociology
18	LOPEZ, Diana	MSc	International relations
19	LUNDUKA, Rodney Witman	PhD	Agricultural Economics
20	MARENYA, Paswel Phiri	PhD	Impact Assessment Economics
21	MISIKO, Michael	PhD	Technology and Rural Development
22	MITTAL, Surabhi	PhD	Agricultural Economics
23	MOTTALEB, Khondoker	PhD	Applied Socio-Economics
24	NELSON, Jenny	MBA	Research Management
25	RAHUT, Dil Bahadur	PhD	Economics
26	RAMIREZ, Alejandro	MSc	Rural development
27	RIIS-JACOBSEN, Jens	MSc, MTM	Information technology
28	ROSSI, Frederick	PhD	Agricultural Economist
29	TEGBARU, Amare	PhD	Anthropology
30	TSEGAYE, Mulunesh	MA	Gender studies

11. Assessment of capacity for gender analysis and gender research in CRP MAIZE

An assessment of the capacity for gender analysis and gender research in CRP MAIZE was carried out as part of the 2013 MAIZE Gender Audit. The MAIZE gender audit found that there is an overall appreciation of the relevance of gender to CRP MAIZE. While in most cases this does not entail an understanding of gender as a social relation, thereby ignoring the relative opportunities and constraints women and men experience, the Audit did uncover such perspectives in a minority of cases. Also present, though not common, was an understanding of promoting gender equality as an end in itself.

Overall the gender audit found that the level of capacity with regards to analyzing and addressing gender issues in maize R4D needs strengthening. The extent of gender integration varied considerably across and within projects, and the gender knowledge and skills of staff and partners was considered to be relatively weak. The lack of capacity among staff was also found to be linked to the absence of systems and procedures that guide and hold staff accountable, which leaves the question and implementation of gender strategies open to individual interpretation.

Efforts to integrate gender into projects under MAIZE were observed in technology development with an emphasis on the promotion of women's participation through the targeting of women, including the integration gender issues in breeding and other technology development, and particularly in the conduct of gender-aware Participatory Varietal Selection. Also, some projects under MAIZE are focusing on 'brokering relationships' between women farmers and different actors across the maize value chain, for example by linking farmers, researchers and other stakeholders in such a way as to provide space for solving local problems and taking advantage of opportunities. The audit also found examples of good practice, such as the targeting and organizing of women farmers, support for women extensionists, and the promotion of women in non-traditional agriculture roles, as well as the adoption of other gender-transformative approaches. More recently, more projects seem to include more activities aimed at addressing gender concerns. The gender audit findings also highlighted that, when and where the effort is put in, women participants in MAIZE projects speak of experiencing greater access to agriculture inputs as well as greater recognition as farmers.

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Annex 1

Some key gender concepts and definitions

Gender refers to the socially-constructed roles and status of women and men, girls and boys. It is a set of culturally-specific characteristics defining the social behavior of women and men, and the relationships between them. Gender roles, status and relations vary according to place (countries, regions, and villages), groups (class, ethnic, religious, and caste), generations and stages of the lifecycle of individuals. Gender is, therefore, not about women but rather the relationship between women and men.

Gender equality entails the concept that all human beings, both men and women, are free to develop their personal abilities and make choices without the limitations set by stereotypes, rigid gender roles, or prejudices. Gender equality means that the different behaviors, aspirations and the needs of women and men are considered, valued and favored equally. It does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they are born male or female.

Gender equity means fairness of treatment for women and men, according to their respective needs. This may include equal treatment or treatment that is different, but considered equivalent in terms of rights, benefits, obligations and opportunities. In the development context, a gender equity goal often requires built-in measures to compensate for the historical and social disadvantages of women.

Empowerment implies people – both women and men – taking control over their lives by setting their own agendas, gaining skills (or having their own skills and knowledge recognized), increasing their self-confidence, solving problems, and developing self-reliance. It is both a process and an outcome. Empowerment implies an expansion in women's ability to make strategic life choices in a context where this ability was previously denied to them.

Gender analysis refers to the identification of differences between men and women with respect to their vulnerabilities, assets, capacities, constraints and opportunities using quantitative or qualitative methods. Gender analysis can be integrated into agricultural topics which are the main focus of CRP research, such as plant breeding.

Gender research refers to studies in which gender issues are the main research topic.

Gender mainstreaming is a strategy for making women's, as well as men's, concerns and experiences an integral dimension in the design, implementation, monitoring and evaluation of policies and programs in all political, economic and social spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.

Gender-neutral approaches do not account for the differences between women and men and do not consider how women and men may be marginalized and harmed or may not benefit from research, programs and policy.

Gender-responsive (or -aware) approaches are designed to meet both women's and men's needs. These approaches ensure that both women and men will benefit and neither will be harmed by research, programs and policy, such as, for example, by exacerbating their work burdens.

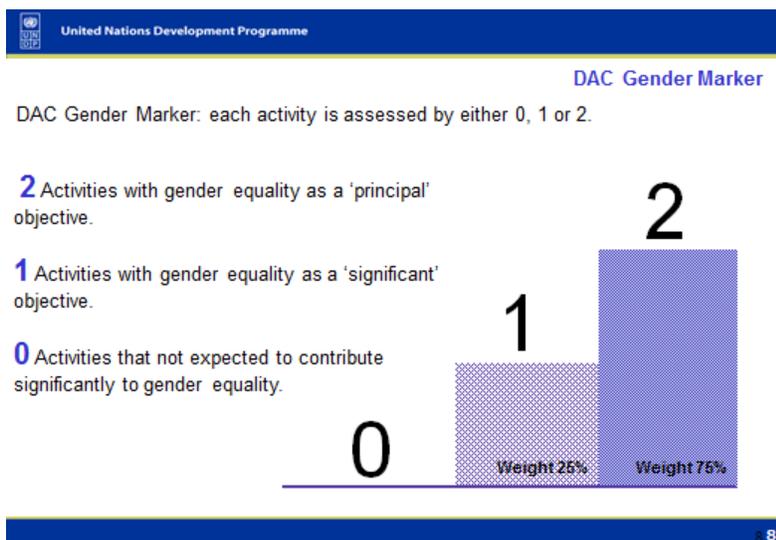
Gender-transformative approaches actively strive to examine, question, and change rigid gender norms and the imbalance of power as a means of achieving development goals as well as meeting gender equity objectives. These research, programmatic and policy approaches challenge the distribution of resources and allocation of duties between men and women.

Adapted from: ILRI 2012 "Strategy and Plan of Action to Mainstream Gender in ILRI"; and CGIAR Consortium Gender Strategy

Annex 2: DAC Gender Marker in MAIZE budgeting

Levels		Criteria/Examples
4 - Projects with gender equality as the SOLE objective	100%	Sole use for (strategic) gender research. Budgets of gender specialists.
3 - ... a PRINCIPAL objective	75%	Majority are women beneficiaries and they are selected and will be likely the main partners/beneficiaries/users of the project results.
2 - ... a SIGNIFICANT objective	25%	Gender is mainstreamed in these projects and significant/substantive benefit by women is will be achieved and documented.
1 - ... with SOME CONTRIBUTION to gender equality	10%	Projects with evidence that they work on women prioritized constraints (eg processing, quality, HH food security) or generate products/outcomes that are particularly relevant for women (eg lower wheat prices). Effort to reach women needs to be made.
0 - Projects that do not expect to contribute significantly to gender equality	0%	Gender neutral research; Examples: Genebank, molecular breeding, bioinformatics.

Adapted from UNDP approach:



Further information:

<http://www.gender->

[budgets.org/index.php?option=com_joomdoc&task=document.download&path=resources/by-theme-issue/financing-for-gender-equality/tracking-gender-related-investments-in-undp&Itemid=823](http://www.gender-budgets.org/index.php?option=com_joomdoc&task=document.download&path=resources/by-theme-issue/financing-for-gender-equality/tracking-gender-related-investments-in-undp&Itemid=823)

http://www.wikigender.org/index.php/Gender_Equality_Marker_System

<http://www.undp.org/content/dam/undp/library/corporate/fast-facts/english/FF-Gender-and-Institutional-Development2.pdf>