

Gender Mainstreaming in the Nutritious Maize for Ethiopia (NuME) PROJECT





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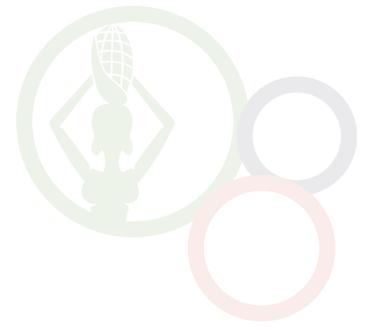
Contents

Contents	iii
Introduction	1
1 Purpose and Focus of this Publication	1
2 Project Profile	1
3 Findings of the Gender Analysis	2
4 Gender Strategy, Action Plan and Monitoring	3
5 Implementation of Selected Strategies	4
5.1 Gender-Responsive Communication and Extension	4
5.1.1 Gender-Responsive Media and Tools	4
5.1.2 Community Conversation	5
5.1.3 Incentive Schemes	6
5.2 Technology Promotion and Access to Inputs	6
5.2.1 Farmers' Field Days and Demonstrations	6
5.2.2 Participatory Variety Evaluation	7
5.2.3 Food and Nutrition Activities	7
5.3 Capacity Building	9
5.3.1 Training for Partners	10
5.3.2 Extension Activities for the Target Population, with a Special Focus on Women	11
5.3.3 Round Table Discussions with Stakeholders	11
5.3.4 Periodic Review of Activity Plans, Proposals and Performance Reports	12
5.4 Gender Research	12
6 NuME's Gender Equality Best Practices	13
7 Conclusion	14
8 Recommendations	15
9 Reference and Further Reading	15

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Introduction

The Nutritious Maize for Ethiopia (NuME) Project aims to mainstream gender by promoting gender-aware thinking and activities at distinct implementation levels. Evidence shows that gender inequality is closely connected to food and nutrition insecurity (e.g., Belachew et al. 2011; Haidar and Kogi-Makau 2009). Women face gender-specific constraints regarding access to and control over agricultural resources such as land, inputs and credit. Though playing a major role in agricultural production and related tasks, they often lack knowledge of new agricultural technologies and practices, and agricultural extension regularly excludes them. Given women's important, though underappreciated, role in agriculture and in the family as primary caregivers, their inclusion in all phases of the maize production and consumption chain was identified as imperative.

1. Purpose and Focus of this Publication

This guide aims to inform a broad set of stakeholders about gender mainstreaming approaches in the NuME Project. Specifically, it offers key insights about how to effectively mainstream gender into the planning, implementation, and monitoring and evaluation (M&E) of agriculture and nutrition projects.

This resource is directed to agricultural researchers, extension agents and other development practitioners working on gender in agriculture.

The publication is structured as follows. First, we give a brief overview of the NuME Project. Next, we describe the preliminary gender findings of NuME, which were used to develop the gender strategy and action plan.



Women participate in QPM dissemination. Photo: NuME staff.

Then we outline the principal mainstreaming activities, including M&E, and their impacts. Based on the lessons learned from the NuME Project, we conclude by offering recommendations for integrating gender into future agricultural projects.

2. Project Profile

NuME aims to increase food and nutrition security for resource-poor smallholder farmers in Ethiopia through the widespread adoption, production and utilization (i.e., processing and consumption) of quality protein maize (QPM); it specifically seeks to reduce malnutrition in women and young children. The project is pledged to the empowerment of women, striving for their participation in all dissemination activities. QPM has increased levels of two essential amino acids, lysine and tryptophan, and is related to better nutritional outcomes in populations with a maize-based diet.

NuME is an ongoing collaborative project led by the International Maize and Wheat Improvement Center (CIMMYT), with partners from Ethiopian government entities and research institutions, international NGOs, universities, and public and private seed companies. Conceived in 2012 and designed to be implemented over a five-year period, the project was extended until March 2019. NuME builds on the achievements of the previous Quality Protein Maize Development (QPMD) project, which supported QPM germplasm development in four countries of East Africa. It is funded by the Government of Canada through Global Affairs Canada (GAC).

The project is implemented in three major maize growing agro-ecological zones (drought-prone, humid mid-altitude and highlands) in 36 target *woredas* (districts) of Amhara, Oromia, Southern Nations, Nationalities, and Peoples' (SNNP) and Tigray Regions of Ethiopia. The ultimate beneficiaries of the project are the rural inhabitants of the 36 target *woredas*, affecting an estimated 4.2 million people (2007 census) in 796,000 households (14 to 23% of which are headed by females).

3. Findings of the Gender Analysis

In order to achieve widespread adoption and utilization of QPM, NuME conducted a gender analysis in the farming context, which included a literature review, findings from the NuME quantitative baseline survey, and key informant interviews and focus group discussions held in December 2012. Additionally, a gender audit of the project implementing partner organizations was conducted in two *kebeles* (the smallest administrative entity in Ethiopia) of the Dore Bafana *woreda* in the Sidama zone, and one *kebele* of the Bure *woreda* in the West Gojjam zone. Findings from this analysis strongly influenced the development of the gender strategy and action plan, discussed in more detail below.

The analysis revealed that women play a considerable role in household food production, care work and income generation. "However, they face severe constraints in terms of access to resources and services such as technological information as well as control

over income, both of which have unfavorable implications for their participation in and benefit from technology endeavors" (NuME Project Gender Strategy, 2014, p. 4).

The gender analysis findings underscore the importance of recognizing the diversity of women's experiences in the Ethiopian context. Three types of women were identified: women in male-headed households, women in polygamous male-headed households, and female household heads. The three categories of women were found to face different needs and constraints, suggesting the need to tailor development approaches for each group to maximize inclusiveness.

The analysis also showed that the formal extension system – an important source of agricultural information for farmers – is oriented towards addressing the household head, thereby limiting access to information among women in male-headed households. Two assumptions underlie this pattern: first, because household heads are typically perceived as the primary decision-makers and landowners – both influence technology adoption – extension officers consider them the more important farmers. Second, technological information is assumed to trickle down from husbands to wives. However, the findings refuted this assumption, revealing a considerable knowledge gap between husbands and wives concerning protein and QPM. Due to cultural norms, men are often reluctant to have women participate in technology-related training courses, and as a result, women rarely attend these capacity-building events. This means that although they do work with agricultural innovation technologies, women, particularly in male-headed households, lack sufficient information about these activities.

Additionally, female household heads included in the sample had less contact with extension officers than male household heads, which was attributed not only to their competing time-use requirements, but also to the "lack of trust in women's technology training outcomes by the formal extension system" (O'Brien et al., 2016, p. 275).

Finally, the gender analysis indicated that the gender focal persons of project implementing organizations and other project stakeholders often lacked gender knowledge, skills and tools, including those related to gender mainstreaming.

4. Gender Strategy, Action Plan and Monitoring

The findings of the gender analysis identified the particular gender constraints faced by women and men in the NuME Project target areas. It also served as a basis for the project gender strategy, which was developed in 2014 to enhance equal participation and benefit sharing among women and men beneficiaries. The strategy includes gender-sensitive and gender-transformative approaches and addresses four closely interwoven themes: (i) gender-responsive communication and extension; (ii) technology promotion and access to inputs; (iii) capacity building; and (iv) gender research. Sub-components planned under each theme include the following:

- (i) **Gender-responsive communication and extension**
 - Provide intra-household and individual-oriented extension, to replace extension oriented to the (male) household head.
 - Use gender-sensitive communication and media tools, e.g., radio, audiovisual and printed materials adapted to target populations, taking into account language, low literacy rates (especially among women) and preferences.
 - Incentive mechanisms.
 - Enhance nutrition expansion and men's participation in food demonstration and nutrition education.
 - Community Conversation.
- (ii) **Technology promotion and access to inputs**
 - Conduct gender-sensitive dissemination activities, e.g., establish women hosted/ managed field demos, invite husbands and wives to demonstrations, organizing women-only field days, consider accommodative time and place for women.
 - Strengthen women's participation in seed production and marketing.
 - Ensure QPM is used by male and female farmers, e.g., through demonstrations and training on foods based on these varieties.
- (iii) **Capacity building**
 - Train project partners on gender issues.
 - Increase the number of female extension workers working for NuME.
 - Invite women to training events, and seek alternative ways of engaging women in technology dissemination activities.

- Identify convenient times and places for training to ensure high participation of women.
- Provide training to women-only groups, with female trainers and facilitators.
- Give special support to women-managed plots in male-headed households.

(iv) Gender research

- Address gender-related knowledge gaps identified in the gender analysis and support post-graduate research.

Selected strategies applied during project implementation will be discussed in more detail in the following section.

A day-long participatory action planning session was held involving all project implementing partners and donor representatives. This session involved group brainstorming discussions, identification of specific activities under each of the four themes and setting the timelines of earmarked indicators. The objectives of the session included examining the gender issues in NuME target areas identified in the gender analysis and discussing how the major components of the gender equality strategy could be developed into an action plan. A three-year action plan aligned with the project log frame was then developed and included as part of the gender equality strategy. Implementation of the action plan has been regularly monitored through feedback mechanisms, performance reports, and discussions with partners during periodic review meetings.

NuME Project activities are regularly monitored to track progress on short-term gender outputs. Occasionally, this has resulted in project adjustments (see below). To monitor gender-sensitive project performance, NuME collects and analyzes specific data on the target populations. Where relevant, indicators are disaggregated by sex, location, etc. Gender-relevant data captured include, for instance, the proportion of the target population that reported being aware of protein content, QPM and its nutritional benefits, and the share of field demonstrations hosted by women farmers. Qualitative indicators are also used, for example, to determine the extent to which gender-integration tools, training and community conversations contribute to the gender-responsiveness of the project.



Throughout the project, gender-related results have been assessed, mainstreaming experiences among partners shared and appropriate corrective measures taken.

5. Implementation of Selected Strategies

5.1 Gender-Responsive Communication and Extension

5.1.1 Gender-Responsive Media and Tools

- Communication media and tools need to be gender-responsive in content and form, so that the special needs, constraints and preferences of the target population can be taken into account. Considering the low literacy rates among Ethiopians in general, but especially among women, information about QPM technology is best conveyed pictorially and through simple text in the local language. Posters should be hung in public places and flyers, leaflets, etc., distributed during home visits, training events or field days. NuME has produced several printed materials in different local languages. For example, manuals for preparing foods with QPM maize and posters on the nutritional benefits of QPM have been printed in Amharic, Oromiffa and Tigringa.
- Radio broadcasting was also identified as a channel to decrease gender information gaps and increase awareness of the benefits of QPM. NuME broadcasts gender-sensitive participatory QPM-related radio programs (e.g., shows on cooking and agronomic practices) in the four target regions in different languages.



Hiwot Tirfinneh- a listener group facilitator in Medeba Zana woreda.

Given that fewer women own and use radios than men, NuME also established 39 women-only listener groups (LGs) of the 79 LGs. Several women farmers from the listener groups were selected as role models and had their stories told in a documentary show.

Surveys conducted in 2015 showed that the target population was very aware of the NuME radio shows, which they said had enhanced their knowledge of QPM varieties, seed availability, agronomic practices, nutrition and QPM food preparation techniques.

To empower women farmers and boost their access to QPM information, in 2016 Farm Radio International (FRI) initiated a new interactive radio programming approach called "Her Farm Radio" (HFR). HFR is based on women's listener groups (WLGs) wherein each broadcast episode includes a relevant question for discussion. Discussions are recorded and sent to the radio station by smart phones provided to the groups (free calls). The program gives the role models and other members of the WLG the opportunity to add their voices, questions and comments to the conversation around QPM production, its advantages and QPM-based food preparation. Through HFR, the voices of WLG members reached thousands of listeners





within and beyond the project area. The program provided hundreds of women with the skills and confidence to tell their own story on the radio, their way.

One of the factors that limits women's participation in field days and agricultural technology training courses is their busy daily schedule, since 79% of rural women in Ethiopia work 13-17 hours per day (Belay 2016). It is always very difficult for both husband and wife to go together to training and field days, as one of them has to stay and care for the children, look after the cattle and more, specifically in the case of marginal households. To overcome this constraint, the use of training videos projected village by village to small groups, at a suitable time has been considered a good way to reach women and help fill the agricultural information gap. The Digital Green audiovisual (AV) technology that uses an innovative digital platform for community engagement to improve lives of rural communities across South Asia and Ethiopia was adopted for this purpose. The videos are screened using a small projector which is very light and easy to transport (fits into one's pocket); it runs on solar energy and so can be used in rural areas with no electricity. A one-meter square white cloth can be used as a screen. Just inserting a flash disk that contains the video film into this portable projector is enough to generate very good quality image and sound without the aid of a computer or any other machine. Women, along with their kids, form small groups to watch the video at their convenience, even during the evenings. By doing so, the absolute number and proportion of women trainees increased. For example, during the 2016/17 cropping season, using AV technology it was

possible to train 8,022 farmers of which 4,102 (51%) were women and 3,920 were men. They were trained on QPM technology (agronomy, QPM-based food preparation, its nutritional benefits and more). Feedback indicated that video-based training is conducive, exciting, entertaining, better understood and attracts attention; it also enables trainees to visually see how to do things.

5.1.2 Community Conversation

Although most gender activities in the NuME Project relate to whether women's access to technology and participation in project activities have ensured that they enjoy the full benefits of QPM technology, the longer-term goal of such activities is more transformative in nature, seeking to strengthen women's place in the household and society at large. To the extent possible and within the context of the project, opportunities such as Community Conversations (CCs) have been sought to create and expand gender awareness and identify gender issues prevailing in the project sites. CC is a facilitated approach based on



Community Conversation program at Shebedino woreda of SNNPR, 2016. Photo: NuME staff.



the recognition that communities have the capacity to identify their societal, economic and political challenges; set priorities; mobilize human, physical and financial resources; and plan for action and address their challenges sustainably.

Community Conversation was applied to address women's lower participation in QPM dissemination and activities and to help communities fully benefit from project interventions. CC was ultimately very successful, insofar as it began to challenge traditional gender stereotypes and change gendered practices. For instance, at the beginning of the CC process, men and women sat separately due to cultural norms. However, this seating pattern changed with time, becoming more flexible and less segregated by gender. Further, while women were initially too shy and afraid to talk in public, they now share their ideas openly. With the limited resources available to the project, CC was only implemented on a small 'pilot' scale and had no major direct impact on QPM adoption. Nevertheless, NuME demonstrates its potential to transform gender sensitivity in rural households.

One facilitator shared his positive CC experience: "This program addresses a very wide scope of issues, issues that even include family relationships. This has relieved me from dealing with the family problems that used to get reported to my office, such as quarrels between husband and wife."

5.1.3 Incentive Schemes

Given that the participation of women in QPM dissemination activities has often remained



below the targeted levels, NuME applies incentive schemes for farmers and extension agents. For example, male farmers who come together with their wives to training courses, demonstrations or field days, as well as women who host demonstration plots, are given QPM seed for free. In addition, one criterion for reviewing the performance of extension agents is the number and rate of women participating in dissemination events. Additionally, extension agents are rewarded for organizing women-only field days.

5.2 Technology Promotion and Access to Inputs

5.2.1 Farmers' Field Days and Demonstrations

The gender analysis revealed that women are often not invited to extension activities (e.g., field days or visits to demonstration plots), which partly explains their low participation in technology dissemination activities. Therefore, to move away from extension activities oriented towards the (male) household head and switch to a more gender-inclusive extension service oriented towards the individual, NuME invites husbands and wives to attend the different learning opportunities together.

Additionally, female extension agents offer women-only field days held at convenient (nearby) locations and adapted to women farmers' schedules. This setting has won approval from many husbands, and as a result, has attracted high levels of female participation. Women farmers participate more freely during these field days as compared to the mixed-gender ones.

During one farmers' field day, a husband talked about his experience adopting one of the QPM varieties in his family plot. During informal talks after the visit, the project team learned that in fact the wife is in charge of farm cultivation. However, due to cultural issues, she was not able to speak to the crowd and share her personal experiences; instead, the man spoke on her behalf.

5.2.2 Participatory Variety Evaluation

Involving women in studying farmers' opinions about new varieties to be disseminated is important, not only on moral grounds, but also to identify sensory as well as nutritional characteristics that are



5.2.3 Food and Nutrition Activities

Under the NuME Project, QPM grain was used to prepare and evaluate several traditional and new food products. The traditional maize food preparation recipes were optimized and standardized to maintain similar taste and quality across the country. Training manuals and video training modules in different local languages have also been developed. In addition, participatory radio programs (PRP) about QPM utilization have been developed and broadcasted. Convinced that men also need to understand the nutritional value of QPM (in order to create demand for QPM and foster adoption), NuME has successfully included men in nutrition-related activities.

important and more appreciated by household members, as women play a pivotal role in food preparation and selection decisions. In a participatory QPM variety evaluation study conducted by the project in three woredas involving 338 participants (47% women), women were more appreciative of the quality aspects. Women rated QPM variety BHQP545 higher than their male counterparts based on yield, early maturity and overall appreciation criteria. They also rated BHQP548 higher for early maturity and overall appreciation than males, and gave a higher score for overall appreciation of MH138Q than their male counterparts. Male participants, on the other hand, rated AMH852Q higher for yield than their female counterparts when the data are disaggregated by gender (Figure 1).



QPM-based traditional food demonstration.

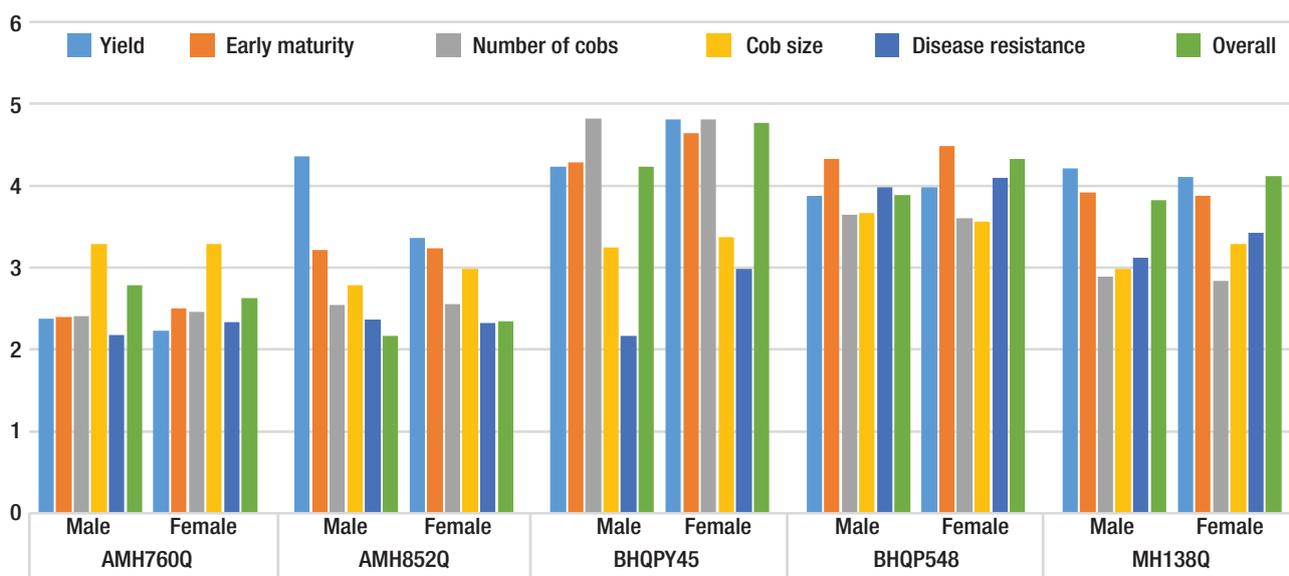


Figure 1. Average evaluation scores of the attributes of QPM varieties as rated by male and female farmers.

Source: Unpublished NuME Project data.

To enhance the knowledge of extension workers, NuME organizes training of trainers events on QPM, with the participation of male extension agents reaching about 40%. Furthermore, food demonstrations are integrated into field days, reaching a high share of male farmers.

Studying consumption characteristics of new varieties is a relatively new area of adoption research in Africa. Initially, most of the attention focused on the agronomic characteristics of new varieties, particularly yield, while their consumer and nutritional characteristics were ignored. Given the predominant role of male farmers in resource endowment and decision-making in agriculture in most developing countries, previous extension endeavors have targeted male farmers and neglected female farmers. Recently, however, agricultural technology dissemination activities have been focusing on the sensory acceptance of new varieties and the inclusion of women in technology evaluation and adoption.

As such, the NuME Project purposely targeted adolescent girls attending elementary schools in two *woredas* under two regional governments with different socioeconomic settings on the sensory acceptance of two traditional foods made from conventional maize and QPM in school food programs. The justification was that, next to mothers, girls are responsible for food and nutrition and have a good sense of taste and preferences. Girls also face marginalization in household food allocation in rural Ethiopia. School girls generally rated *kinche*, a cooked cereal grist made from QPM, higher than *kinche* made from conventional maize. Within the QPM, their rating was different, for they preferred yellow QPM over white QPM, indicating color to be associated with some functional and sensory properties. There was no clear disaggregation of preference based on color for conventional maize. Generally, *kinche*

made from yellow QPM rated high for appearance, taste and overall appreciation, while *kinche* made from white QPM was rated relatively high for texture, taste and overall score (Table 1).



Food taste and school feeding.

The preference trend for *dabo* was the same for both sexes, with a very small discrepancy in number: most women and men preferred *dabo* made from yellow QPM (about 56 and 67%, respectively) over *dabo* made from white QPM (about 35 and 31%, respectively). This is quite advantageous because it avoids controversies between spouses on which QPM to produce or buy and use. Major differences in preferences could create disagreements in decision making for resource utilization. Although *dabo* made from yellow and white conventional maize (CM) have similar sensory properties, farmers were more attracted by the appearance of yellow than white CM due to its color (Table 2).

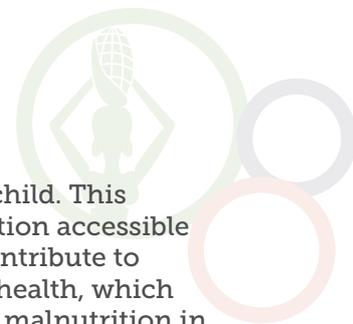
In a separate study evaluating *genfo* (thick porridge) as a weaning food for young children, mothers and children showed similar preference for the different maize varieties,

Table 1. Scores given by adolescent girls scores for various sensory characteristics of *kinche* made from conventional and QPM varieties (n=95).

Maize variety	(on a scale of 1-5 where 5 is best)				
	Appearance	Aroma	Texture	Taste	Overall
CW (BH660)	3.75	3.54	3.58	3.47	3.85
QPM-W (AMH760Q)	3.65	3.73	3.88	3.97	4.12
CY (Shaye)	3.77	3.8	3.6	3.66	3.86
QPM-Y(BHQPY545)	4.08	3.6	3.63	4.24	4.24

Source: Unpublished project data.

Note: CW= conventional white; CY= conventional yellow; QPM-Y= QPM yellow and QPM-W=QPM white maize varieties.



implying that mothers can select food for their children. As shown in Table 3, mothers and children consistently preferred *genfo* made from QPM (both yellow and white) over *genfo* made from CM. Also, 81.9% and 46.3% of the mothers and 59.0% and 44.9% of the children liked *genfo* made from yellow and white CM very much. Only 13.3% and 9.5% of mothers and children liked *genfo* made from white CM very much. Unlike *dabo*, *genfo* made from yellow CM was the least preferred, indirectly revealing a preference for white grain maize for making *genfo*. Generally, mothers not only select varieties to make preferred foods for themselves, but also predict how acceptable a food made from a particular variety would be to their children and the household.

While nutrition knowledge acts as a pathway through which maternal education influences decisions, a female Ph.D. student partially sponsored by the project carried out research to explore strategies that encourage consumption of QPM to improve the nutrition of young children. These strategies include giving additional information to female caregivers (mothers) and specially labeled containers for earmarking QPM grain specifically for child consumption. Preliminary analyses suggest that there were improvements in children's consumption of QPM and other targeted behaviors such

as cooking specifically for the child. This indicated that making information accessible to mothers can significantly contribute to improving child nutrition and health, which has direct bearing on reducing malnutrition in the country in the short and long term.



Providing information to mothers for encouraging QPM consumption.

5.3 Capacity Building

Capacity building activities have been undertaken for different stakeholders, at varying levels and addressing a range of topics.

Table 2. Overall preference for dabo disaggregated by gender during central location test using a 5-point Likert scale (N=96).

Likert scale	Overall rating of white QPM (%)		Overall rating of yellow QPM (%)		Overall rating of white CM (%)		Overall rating of yellow CM (%)	
	Male	Female	Male	Female	Male	Female	Male	Female
Dislike very much	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dislike	0.0	0.0	0.0	0.0	12.5	4.2	8.3	2.1
Neither like or dislike	20.8	8.3	4.2	2.1	25.0	33.3	35.4	12.5
Like	47.9	56.2	31.2	41.7	58.3	60.4	47.9	77.1
Like very much	31.2	35.4	64.6	56.2	4.2	2.1	8.3	8.3

Source: Diro, S. (2015)

Table 3. Rating (%) by mothers and children of *genfo* made from QPM and conventional maize varieties as determined by a modified home use test (N=210).

Likert scale	White QPM		White CM		Yellow QPM		Yellow CM	
	Mother	Child	Mother	Child	Mother	Child	Mother	Child
Dislike very much	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dislike	1.0	0.0	1.9	4.8	0.0	0.0	0.0	22.9
Neither like nor dislike	4.8	10.5	11.4	19.0	1.9	1.0	29.5	23.8
Like	47.6	44.8	73.3	66.7	16.2	40.0	66.7	51.4
Like very much	46.3	44.8	13.3	9.5	81.9	59.0	3.8	1.9

Source: Diro, S. (2015)

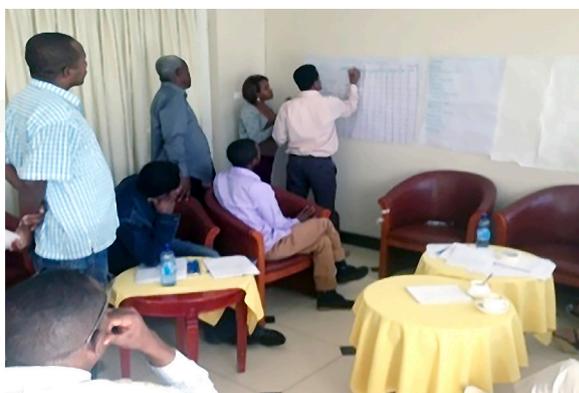
5.3.1 Training for Partners

- Based on the results of the gender analysis, which revealed the insufficient gender-related knowledge, skills and tools of project implementing partners, and after conducting a Gender Training Needs Assessment with partner institutions, the project gender specialist provided training on "Gender in Agriculture" to implementing partners. During training, they discussed basic gender concepts and highlighted the importance of incorporating gender into agricultural research and development projects like NuME.
- Farm Radio International (FRI) offered specialized training on "Gender-responsive QPM Radio Programming" to radio station workers of NuME Project partners. In addition to the topics mentioned above, the training covered gender-relevant radio communication issues, such as topic selection, language use, transmission date and time, and the gender of the radio announcer. Special attention was given to participatory ways of radio programming. FRI staff continue to train collaborators for new projects and long-standing colleagues in need of a refresher course.
- NuME trains partnering journalists, radio broadcasters and editors on gender-responsive and participatory radio programming. Courses are offered to new colleagues entering the project, and refresher courses are provided to those who have been with NuME for some time. Using this medium in a gender-responsive manner requires, for example, considering women's tight schedules, their literacy level or radio listening habits and, in the case of Ethiopia, contents need to be presented in an entertaining manner.
- During pre-season training at the *woreda* level, additional mainstreaming sessions are regularly provided for agricultural

professionals and project focal persons that emphasize the importance of gender mainstreaming in the NuME Project. Project implementers leave these events with tailored checklists on how to mainstream gender into their respective areas of work. Participants have thus far given positive feedback, describing the brief gender training session as helpful for their periodic planning of activities.

As a male extension expert from SNNPR confirmed, "This gender training is being provided to us at the right time as we are now getting prepared to make a plan of the field-level activities for the up-coming season, and the points covered in this session will help us identify the gender issues we should take into account while planning activities, for example, the need to take into account issues of time convenience for women when organizing field days and demos, proximity of centers where meetings take place, trainings are organized, etc."

- Following the project's overall strategy to enhance women's participation in all aspects of the project, scholarships were given to two M.Sc. and one Ph.D. student working in NuME partner institutions. One of the M.Sc. students did her research on breeding QPM varieties and the other M.Sc. student did her thesis research on determinants of intra-household gender differences in access to agricultural extension services on improved maize varieties. The Ph.D. student got only field research support from the project and studied how much agricultural information affects the adoption of QPM. Two women M.Sc. human nutrition students are writing their M.Sc. thesis from the data collected by the Ph.D. student from a randomized controlled trial designed to investigate the impact of quality protein maize on the nutritional status of Ethiopian children. Had



Participants in group discussions during a training course on gender and agriculture in 2014. Photo: NuME staff.



A farmers' field day at Dano woreda of Oromia in 2015. Photo: NuME staff.



it not been for the lack women professionals in most partner institutions, the number of women who trained at the graduate and post graduate levels would have been much more than five.

5.3.2 Extension Activities for the Target Population, with a Special Focus on Women

NuME Project partners provide continuous training to men and women farmers in the project area, mainly through demonstration plots and field days.

Steps taken to achieve the target share of women in these activities included the specific targeting of women, emphasizing the important role of QPM for child nutrition, enhanced collaboration with female extension agents, involving health extension workers (who often tend to be female) in project activities and tying the performance evaluation of extension officers to the participation of women.

The number of demonstration plots hosted by women farmers shows an encouraging picture, for it exceeded the initial project target of 10%, and is increasing each year (Table 4).

Table 5 reveals a slight decrease in the share of women participants on field days during 2016 due to external factors but regained its pace in 2017. Overall, however, the project exceeded the target figures.

5.3.3 Round Table Discussions with Stakeholders

The NuME gender specialist regularly meets with government agricultural extension department heads, health extension unit coordinators and experts, religious and local leaders, leaders of local financial and social associations and school administrators to discuss gender and inclusion issues. Stakeholders have played a very important role in initiating and implementing the aforementioned CC.

Table 4. Demonstration plots hosted by men and women farmers.

Year	No of plots hosted by men	No of plots hosted by women	% of plots hosted by women
2013	314	44	12%
2014	366	70	16%
2015	242	66	21%
2016	217	76	26%
2017	163	50	24%

Table 5. Number of men and women participating in field days.

Year	Men	Women	% Women
2013	37,408	14,513	28%
2014	62,143	26,335	30%
2015	60,235	27,099	31%
2016	36,700	11,806	24%
2017	29,659	10,927	27%





Round table discussion with stakeholders in SNNPR, 2015. Photo: NuME staff.

5.3.4 Periodic Review of Activity Plans, Proposals and Performance Reports

Twice a year, the project gender specialist reviews progress reports submitted by project implementers. She provides feedback from a gender perspective and discusses how to improve gender-related activities with implementers. Partners share experiences about their strategies to encourage women's participation in the different activities. A specific section on integrating gender into the activities is included in the partners' activity plans and performance reports.

5.4 Gender Research

The NuME baseline study and gender analysis identified several gender-related knowledge gaps. Closing these gaps would inform the gender strategy and help enhance the project's sustainability. NuME supports post-graduate

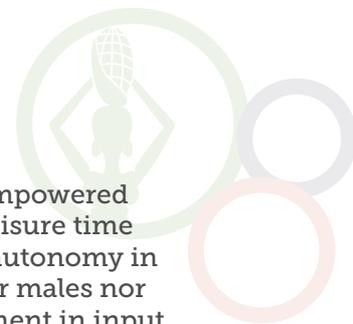
gender research projects. For example, in cooperation with NuME, an M.Sc. project was established in 2016 at Haramaya University in Ethiopia titled "Determinants of Intra-Household Gender Difference in Access to Agricultural Extension Service on Improved Maize Varieties." NuME is also currently supporting the Ph.D. project "The Effect of Quality Protein Maize on Nutritional, Health and Economic Status of Women and their Children among Maize-Growing Areas of Ethiopia," undertaken in collaboration with the University of Wageningen. In addition, a research paper on gender analysis in NuME was published in *World Medical & Health Policy*.

Intra-household gender disparity in access to agricultural extension services on improved maize variety technologies in Ethiopia was studied by one of the female M.Sc. students sponsored by the NuME Project. It specifically analyzed farmers' perception of the agricultural extension services received and of women's empowerment in agriculture. A total of 120 farm households were included in the study. Both qualitative and quantitative data analysis techniques (descriptive statistics, logistic regression, perception score and the Women's Empowerment in Agriculture Index) were employed. Accordingly, the regression result revealed that age, education, family size, farm experience, frequency of listening to the radio, distance from a farmers' training center and the development agent's sex significantly affected participation in agricultural extension services. There was disparity between women and men (Table 6); women were less empowered than men. The Women's Empowerment in Agriculture Index was 73%, while the overall gender parity index

Table 6. Women empowerment index in agriculture in the study area.

	Condition of empowerment	
	Men % (n=60)	Women % (n=60)
Disempowered head count ratio (H)	19.64	75.0
Average inadequacy score (A)	30.30	35.15
Disempowerment index (M0)	5.95	26.37
5DE indexes (1-M0)	94.04	73.63
% of women with gender disparity (¹ GPI)		100.0
Average empowerment gap (¹ GPI)		31.57
Gender parity index (GPI)		68.42
No. of wife used		60.0
Percentage of data used		100%
WEAI= (0.9(5DE)+0.1(GPI))%		73.10

Source: Abebe L. (2016).



(GPI) was 68% and the empowerment gap was 32%. In addition, the perception score reveals that women and men farmers' perception of the performance of agricultural extension was different.

According to Lemlem Abebe (Abebe, L. 2016.), it was observed that those empowered women have a better decision making role on income obtained from food crop production and livestock production. So this study substantiated that all empowered women were found to make household decisions regarding use of agricultural inputs such as improved seeds and fertilizer compared to 88% of the non-empowered women. Similar observation was made for input decision regarding income from livestock (data not shown).

As presented in Table 7, the decomposed result of the five dimensions of empowerment revealed that the domains that contributed most to women disempowerment were inadequate work load (64%) and lack of adequate access to credit and control over income obtained from credit (53%). More than 42% of the disempowered women did not speak adequately in public, and 27% of disempowered women did not have relative autonomy in production. It was also observed that lack of adequate group membership and joint control over the purchase, sale and transfer of resources contributed less to the disempowerment of women. The study also indicated that men's lack of empowerment was the result of an inadequate workload (16%) followed by lack of access to and decision on credit obtained (14%), and group

membership (14%). Of the disempowered males, 12.5% lacked adequate leisure time and 5.4% did not have relative autonomy in production. In addition, neither males nor females reported disempowerment in input decision and resource ownership. Meanwhile, disempowerment was not observed in income decision for men. Future works in the study area will need to consider and address the level of the empowerment gap and the contribution of each indicator according to their priority.

6. NuME's Gender Equality Best Practices

Some of the best practices used by the project to ensure and promote gender balance and opportunities in the broader issues of QPM and nutrition-sensitive agriculture are listed below.

- 1) Develop a separate gender mainstreaming strategy and action plan with clearly measurable targets;
- 2) Adopt gender-sensitive resource allocation, and recruit a gender specialist to implement its strategy;
- 3) Integrate gender targets in the monitoring and evaluation checklist;
- 4) Undertake capacity building at different levels (post-graduate degree, ATVET faculty, agriculture and health extension, seed sector development, farmers) and across all facets of the NuME Project.

Table 7. Five dimensions of empowerment decomposed by dimension and indicator.

Statistics	Gender groups	Productive (1/10)		Resources (1/15)			Income (1/5)	Leadership (1/10)		Time use (1/10)	
		Input decision	Relative autonomy	Access to ownership	Purchase, sale and transfer	Access to and decision on credit		Public speech	Group membership	Leisure	Work load
Censored head count	Women	0.0	0.27	0.0	0.018	0.53	0.09	0.43	0.25	0.5	0.64
	Men	0.0	0.054	0.0	0.0	0.14	0.0	0.018	0.14	0.125	0.16
% contribution	Women	0.0	0.10	0.0	0.005	0.14	0.07	0.16	0.094	0.19	0.24
	Men	0.0	0.09	0.0	0.0	0.36	0.0	0.03	0.24	0.11	0.17
Absolute contribution (weight x CHC)	Women	0.0	0.027	0.0	0.0012	0.036	0.018	0.043	0.025	0.05	0.064
	Men	0.0	0.0625	0.0	0.0	0.02613	0.0	0.0053	0.027	0.013	0.016
% contribution by dimension	Women	10.0	14.5	7.0	25.4	43.0					
	Men	9.0	36.0	0.0	27.0	28.0					

Source: Abebe L. (2016).

- 5) Select and approach women early in the cropping season before they dedicate their plots to other crops or other maize varieties, so that they can host QPM demonstrations. This is usually done by the concerned *woreda* office of agriculture through the development agents (DAs), in the *kebele* selected for demo implementation that season.
- 6) Use the government structure for women's groups to create awareness and organize field visits to QPM demos for women.
- 7) Arrange field days on vaccination days, *idir* (social savings sharing program for special purposes such as funerals), and on religious holidays, when women in the village gather in good numbers.
- 8) Approaching women farmers with women development agents (DAs) accepted has been quite successful to address women, but women DAs are not available in all kebeles.
- 9) Encourage women farmers who host field demos to explain to field day participants how they carry out their farm operations.
- 10) During field days, have equal numbers of women and men taste QPM-based food products and then ask them to express their feelings about the food types and tastes to the audience.
- 11) Technical reports and annual work plans from partners are reviewed for their gender inclusiveness (against the gender action plan) by the gender expert before they are presented on review and planning meetings.
- 12) Reward the DAs for involving a higher number of women than in the previous season in order to encourage others for the next season. Women's involvement in demos and field days is one of three major criteria for evaluating the DAs' performance and paying them modest mobility allowances.

7. Conclusion

Since its inception, the NuME Project has achieved considerable gender-related results. The gender equality strategy document serves as a living document for all project partners and the participatory action planning process helped create a sense of ownership of gender-related activities among implementing partners.

Gender mainstreaming among project partners remains an ongoing learning process. Mainstreaming activities have included the training of partners at the beginning of the project, brief gender sessions during the regular pre-season meetings of agricultural experts at the community level, and the organization of women-only field days and demonstrations. Working with traditional institutions (religious, social and economic) and community groups to reach out to different women's groups has facilitated positive gender-related outcomes. The close collaboration between the project gender specialist and implementing partners (e.g., through regular meetings, sharing of experiences and the review of work plans and progress reports) has helped ensure that gender issues are adequately addressed and that new methods are devised to achieve gender targets. A number of gender working materials have also been produced to facilitate the project's multitrack gender efforts, including training manuals; gender integration checklists for field staff; facilitation manuals for CC; and gender-responsive radio, audiovisual and print materials. The CC pilot program has generated very positive feedback from community members and encouraging preliminary results that suggest transformative and sustainable change is taking place in the communities.

Corrective measures have been taken to address missed gender targets. For instance, more women-only field days were organized to address the cultural barriers hindering women's participation and thus increase their involvement in QPM dissemination activities. For the same reason, project implementers also introduced the aforementioned incentive schemes for farmers and extension agents.



8. Recommendations

- Use a mix of gender-sensitive and gender-transformative approaches.
- Collaborate with implementing partners who – if possible – have gender experience, to mentor field staff on gender-related activities. If not, provide extensive gender training for partners.
- Work constantly to build the gender capacity of the local government agriculture extension offices responsible for organizing farm-level activities, such as field days and demonstrations.
- Ensure that all partners understand how gender results contribute to the sustainable achievement of the project goals.
- Work together with social institutions and women's groups to reach out to women farmers.
- Build on proven gender inclusion strategies, such as organizing women-only field days and community conversations.
- Develop practical and user-friendly tools, checklists and guides on gender mainstreaming for project implementers.
- Design different strategies to reach out to different household types.
- Provide an enabling environment that encourages women's participation in dissemination activities, considering gender-based constraints and the cultural environment (e.g., provide child care during extension activities).

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