Towards Gender Responsive Agricultural Research: Needs, Gaps, and Opportunities for Gender Training and Institutional Transformation in East Africa

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By

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Acronyms

ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AWARD	Association of Women in Agriculture Research and Development
BUGIZARDI	Buginyanya Zonal Agricultural Research and Development Institute
FAO	Food and Agricultural Organisation
FARA	Forum for Agricultural Research in Africa
GDP	Gross Domestic Product
GFPs	Gender Focal Persons
IDRC	International Development Research Institute
M&E	Monitoring and Evaluation
MbaZARDI	Mbarara Zonal Agricultural Research and Development Institute
MINAGRI	Ministry of Agriculture and Animal Resources
MuZARDI	Mukono Zonal Agricultural Research and Development Institute
n.d	Not dated
NaCRRI	National Crops Resources Research Institute
NAFORRI	National Forestry Resources Research Institute
NaLIRRI	National Livestock Resources Research Institute
NARL	National Agricultural Research Laboratories Kawanda
NARO	National Agricultural Research Organisation
NARIs	National Agricultural Research Institutes
NARs	National Agricultural Research System
NGP	National Gender Policy
PI	Principal Investigator
PSTA	Plan for Agricultural Transformation in Rwanda
RAB	Rwanda Agriculture Board
SPSS	Statistical Package for the Social Sciences
UNDP	United Nations Development Programme
ZARDI	Zonal Research Development Institute

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Executive Summary

Introduction

The need for gender-responsiveness in agricultural research is widely recognized, expressed for decades in global, regional, and national development strategies and programs. Huge amounts of resources have been committed by donors and governments towards gender training and conduct of gender responsive research. However, agricultural research projects and programs largely remain "gender-blind" in design, but especially in implementation. This research sought to examine the causes of limited implementation in response to this important regional priority. The project had three key objectives:

Objective 1: Analyze individual capacities and institutional environments in research organizations, with a gender transformative lens, to identify existing capacities, needs, barriers and drivers for gender responsiveness.
Objective 2: Use the findings from the capacity assessment to refine an ongoing innovative tailor made course development.
Objective 3: Develop a Monitoring and Evaluation (M&E) framework that can be used to track gender responsiveness of agricultural research.
To address objective 1, the research team undertook an empirical research whose findings are presented in this report.

Methodology

The study was undertaken in Uganda and Rwanda focused on two national research organisations - National Agricultural Research Organisation (NARO) and Rwanda Agriculture Board (RAB) respectively. A mixed method approach was used in which both quantitative and qualitative data was collected over a period of three months (June-August, 2016). A self-administered survey tool was administered to researchers and managers while key informant interviews, case studies and document review provided the qualitative data. A total of 218 responded to the survey in Uganda while 37 responded in Rwanda. A total of 29 interviews were conducted: top and middle managers (15 for Uganda and 1 for Rwanda); Gender Focal Persons (7 for Uganda and 2 for Rwanda); Case studies with researchers that were either applying or not applying gender skills (3 for Uganda and 1 for Rwanda), and 17 Principal Investigators of research projects (10 for Uganda and 7 for Rwanda). The study was guided by the following questions:

- What are the policy and practice drivers/motivators and barriers/inhibitors for gender responsive research?
- What is the level of access to gender training by agricultural researchers?
- What is the level of application of gender to biophysical and socio-economic agricultural research?

Key findings

Gender capacity and application

Each of the research centres across the two countries was supposed to have one gender focal person (GFP) to guide the integration of gender. The individuals assigned this role demonstrated passion, commitment and personal initiative in supporting gender efforts. However, the number of GFPs was inadequate to meet the demands. In addition, they had technical capacity deficiencies since they were not gender experts but had only received short gender training courses.

On researcher capacity to integrate gender in research, access to gender training was found to be low and most of the training efforts were planned and facilitated by other organizations. Both NARO and RAB had limited capacity to conduct gender responsive research, specifically, regarding practical skills to integrate gender in a holistic systematic manner at each stage of the research cycle. Serious weaknesses were identified among women and men scientists in gender analysis as part of research planning and needs prioritization; formulation of gender responsive goals and objectives; conceptualisation and research design; collection and analysis of sex disaggregated data; and reporting and publishing gender disaggregated findings.

While most scientists were positively disposed towards gender and were supportive of its integration in research, the capacity to conduct gender responsive research was found to be very low. Applying gendered research was affected by the lack of researcher competence, lack of reward/incentive systems, lack of organizational and institutional support mechanisms and some negative perceptions towards gender integration. For the most part, supervisors who can play a role in influencing training transfer were not helpful to most of the scientists. There is a likelihood that the capacity training strategies for these scientists in Rwanda and Uganda were lacking and falling short of the required effort. This study found very limited gender skills and knowledge among scientists, with some that had been trained, unable to apply. The few that made an attempt to apply in both Uganda and Rwanda were researchers driven by individual passion and appreciation for gender. However, these were themselves limited in their capacity to be gender responsive.

Both countries were implementing a range of projects where gender was integrated in one way or another and many scientists perceived themselves to be gender responsive. However, their perception was based on their limited understanding of what constitutes gender responsive research. In-depth analysis of the selected research projects using the gender responsiveness monitoring and evaluation framework developed in this study showed that none of the research projects consistently integrated gender in the entire research cycle with the exception of only pockets of gender considerations. The study defined gender responsive research as research that considers gender needs/interests, priorities, opportunities, constraints and ensures that both women and men participate in, and benefit from the research processes, products and interventions.

Drivers and barriers of gender responsiveness at institutional level

The key driver to the efforts of integrating gender in agricultural research was the donor requirement that research proposals consider gender to which individual researchers responded. Donors were also critical in the gender and agricultural research policy formulation processes in both countries. ASARECA as a regional research network greatly influenced gender integration in RAB.

Other drivers included a few passionate leaders in top management positions often women with clout and power to influence institutional resource allocation and decision making. These were critical in initiating gender focal person structures and a gender and diversity strategy process in Uganda; and in Rwanda, women representation and pursuit of advanced training. In addition, the national gender policy environment in both countries whereby each sector including agriculture was expected to integrate gender contributed to the observed efforts.

The main barrier to institutionalization was the absence and/or limited operationalization of gender policies, strategies and operational guidelines. Both countries lacked relevant institutional incentives and accountability system which undermined priority attached to gender responsive agricultural research. Consequently, while leaders demonstrated support and appreciation of gender, this did not translate into allocation of adequate human and financial resources to gender efforts.

Recommendations for effective gender training and institutionalization of gender responsive agricultural research

Funding modalities for agricultural research through donors were identified as the key driver of the gender agenda in agricultural research although it has not resulted in the desired transformation due to shortcomings in the approach used. We recommend that the approach to funding by governments and donors should be reviewed so as to promote transformation at individual and institutional levels.

- Research proposals should demonstrate actionable strategies/interventions for integrating gender at all stages of the research cycle from problem identification, design, implementation to dissemination.
- Establish gender responsive systems for research monitoring, supervision and reporting to ensure that implementation adheres to the proposed plans
- Ensure adequate budgets to support gender focused activities in projects, for example, gender training of research teams and technical backstopping by gender experts
- Prioritise funding for multidisciplinary/interdisciplinary research by teams that include social scientists, gender experts, and biophysical agriculture disciplines for cross learning
- Fund long term systems oriented institutional gender transformational projects aimed at creating an enabling environment for gender responsive research within national agricultural research organizations. Such projects would for example support formulation and implementation of a gender policy and strategy; development of capacity for institutional transformation and gender responsive research for research leaders, scientists, administrators.

Pre-service training programs for researchers should be reviewed and re-structured to produce a suitably qualified cadre of experts to undertake gender responsive agricultural research.

- Gender Studies curricula in higher education institutions should integrate adequate coverage of synergetic interactions between gender and agriculture studies. This will produce a critical mass of gender specialists equipped to provide technical backstopping to agricultural research.
- Gender should be integrated into agriculture curricula in higher education institutions to ensure that agricultural scientists acquire basic gender awareness and skills as part of their formal graduate training.

In-service short gender courses for agricultural researchers should be re-designed for greater effectiveness and impact.

- Design short gender courses tailored to the role and needs of the diverse categories of staff in research organizations, namely, top and middle management, scientists, M&E officers, Human resource managers.
- The Gender focal persons require more in-depth specialized gender training. The content should be informed by an understanding of their specific needs as distinct from those of other scientists due to their expected role to lead an institutional transformative process.

- The training for top management should include gender awareness raising, gender policy and strategy formulation, gender budgeting, gender responsive monitoring systems, institutional incentives and accountability for gender responsive research.
- In recruiting participants of the short courses, it is important to target individuals with demonstrated interest and passion for gender: Such individuals are more likely to apply skills acquired and drive institutional transformation. One of the eligibility criteria should be a personal motivation statement. Gender training programs should aim at creating a pool of well trained passionate individuals within each research institute or organization.
- Design of short courses should include post-training follow up and support for on job application

1. Introduction

> *...Closing the gender gap is smart economics….closing the gender gap in agricultural productivity could potentially lift as many as 238,000 people out of poverty in Malawi, 80,000 people in Tanzania, and 119,000 people in Uganda" (UN Women, UNDP and World Bank,2015, p.v).*

For many developing countries, agriculture is the backbone of development, contributing between 30-60% of the Gross Domestic Product (GDP). It employs more people (as much as 70 percent) than any other sector, represents a major source of foreign exchange, supplies the bulk of basic food and provides subsistence and other income to more than half of the population (FAO,2007).

Gender issues pervade agriculture in various parts of the world where the ownership and management of farms and natural resources is defined by gender (Meinzen-Dick, Quisumbing, Behrman, Biermayr-Jenzano, Wilde, Noordeloos, Ragasa & Beintema, 2011). While Women play a key role in food production in the developing world, contributing about 60 percent of labor on family farms in Sub-Saharan Africa (UN Women, UNDP and World Bank, 2015), they continue to be marginalized in agricultural programmes including research. Women often have limited control over farm income or agricultural resources such as seeds, fertilizer and land, yet, they are more likely to reinvest income as much as 10 times more than men in their family's well-being (Gates, 2014). It has been noted that when Women farmers are meaningfully engaged in agricultural development programmes, not only will agricultural productivity increase, there will also be better adoption of new technologies and overall improvements in family health (www.gatesfoundation.org; UN Women, UNDP and World Bank, 2015). There is evidence that paying attention to gender in agriculture is smart economics that promotes programme effectiveness and acknowledges Women and men as equal partners in agricultural development (FAO, 2011; World Bank, 2012a). Gender responsive research would therefore go a long way to promote gender equitable agricultural programmes, leading to increased productivity, improved nutritional outcomes and income, eventually bridging the gender gap (UN Women, UNDP and World Bank, 2015).

Efforts have been made to enhance the capacity of agricultural researchers to be gender responsive. These include gender capacity building trainings by regional organisations such as Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), Forum for Agricultural Research in Africa (FARA) and African Women in Agricultural research and development (AWARD) among others. However, the level of individual and organizational gender capacity as well as the extent to which researchers are applying gender skills in biophysical and socio-economic agricultural research remains unknown. This study attempted to assess the capacity of agricultural organisations to conduct gender responsive research focused on the institutional environment and existing practices including drivers and barriers, the capacity and level of application of gender by individual researchers. The study was undertaken in Uganda and Rwanda focused on two national research organisations - National Agricultural Research Organisation (NARO) and Rwanda Agriculture Board (RAB) respectively. A mixed method approach was used in which both quantitative and qualitative data was collected over a period of three months (June-August, 2016). A self-administered survey tool was given to researchers and managers while key informant interviews, case studies and document review provided the qualitative data. The study was guided by the following questions with respect to the 2 target organizations:

- What are the policy and practice drivers/motivators and barriers/inhibitors for gender responsive research?

- What is the level of access to gender training by agricultural researchers?
- What is the level of application of gender to biophysical and socio-economic agricultural research?

Other than informing policy and programming in the targeted agricultural research organisations, the study contributes to the growing body of knowledge on integration of gender in agricultural research and development (Njuki, 2016; Sarapura and Puskur, 2014; Manyire& Apekey,2013;Njuki & Miller, 2013;Meizen-Dick, R, et al, 2011; Recke & Ngugi, 2005). Sarapura and Puskur (2014) have argued for the need to go beyond conventional efforts to gender mainstreaming towards changing the organizational culture and policies to facilitate transformative practices. To do so, there is need to pay attention to gender capacities and skills for staff, partners that are nurtured through an enabling organizational environment that includes leadership, management practices, systems and policies, organizational structure, and work environment (Sarapura and Puskur, 2014).Meizen-Dick, R, et al (2011) have postulated that incorporating gender issues in agricultural research, development, and extension systems significantly contributes to the food needs of the future population and ensures that productivity translates into the improved welfare of the poor. In lieu of these calls, this study has attempted to assess the institutional structures, researcher capacities, including drivers and constraints and suggests the way forward towards more effective gender training for enhanced responsiveness.

The report has six sections. Section 1 is the introduction presenting the background to the study and methodology. The findings are presented in four sections: Section 2 Institutional factors influencing gender responsive research in NARO; Section 3 Gender capacity and application by NARO researchers; and Section 4 Institutional analysis and researcher capacity assessment of RAB. In Section 5 we present a monitoring and evaluation framework for assessing gender responsiveness of agricultural research and use it to analyse case study projects in Uganda and Rwanda. The last section gives a synthesis of findings and recommendations.

1.1 Background to the study organizations

1.1.1 National Agricultural Research Organisation (NARO)

The National Agricultural Research Organisation (NARO) is a Public Institution established by an act of Parliament the NARs Act (2005) mandated to coordinate, oversee and guide agricultural research in Uganda. One of the key functions of NARO is to "set national priorities and harmonize agricultural research activities of the national agricultural research system, constituent institutions and public agricultural research institutes, civil society organisations, private sector and farmer organizations and promote delivery of quality and efficient agricultural research services." The vision, Mission, Goal and core values are given below;

Vision: A market responsive, client oriented and demand driven national agricultural research system.
Mission: To generate and disseminate appropriate, safe and cost effective technologies.
Goal: To enhance the contribution of agricultural research to sustainable agricultural productivity, sustained competitiveness, economic growth, food security and poverty eradication.
Core Values: Inclusivity, Transparency, Integrity, Accountability and Excellence.

NARO research activities are conducted through semi-autonomous public agricultural research institutes - National Agricultural Research Institutes that manage and carry out agricultural research of a strategic nature and of national importance; and Zonal Agricultural Research and Development Institutes which manage and carry out either applied

or adaptive agricultural research for specific agro-ecological zones (Annexes 1&2). The NARO Secretariat is charged with the overall guidance and coordination of all the research institutes and agricultural research activities countrywide (Annexes 1&2).

NARO's vision, Mission, Goals and values depict a commitment to implementing research programmes that aim at transforming the livelihoods of all Ugandans, both women and men. The Mission, Goals and Values as stated embody the principles of client orientation and inclusiveness and are therefore compatible with gender responsiveness.

Table 1 NARO Institutes and their mandates

Institute	Mandate
1. National Agricultural Research Laboratories (NARL), Kawanda	Conducting research and providing services on soils, agro-meteorology and Environment; bananas; biosystems and agricultural engineering; food science and agribusiness; and biodiversity and biotechnology
2. The National Fisheries Resources Research Institute	It is charged with conducting basic and applied research of national and strategic importance in Capture fisheries, Aquaculture, Water environment, Socio-economics and Marketing and Information Communication Management and emerging issues in the fisheries sector.
3. National Crops Resources Research Institute (NaCRRI)	Conduct, carry out research and knowledge generation for Beans, Cassava, Cereals, Horticulture and Sweet Potatoes Research.
4. National Forestry Resources Research Institute (NAFORRI)	To enhance scientific innovations, skills, information and policy advice for increased productivity, conservation and sustainable use of forest and tree resources.
5. National Livestock Resources Research Institute (NaLIRRI)	To enhance sustainable utilization of appropriate livestock research outputs for improved livelihoods of Ugandans.
6. National Semi Arid Agricultural Research Institute (NASARRI)	To generate, package and disseminate appropriate agricultural production technologies and information for improved and sustained integrated crop and natural resource management in partnership with other stakeholders
7. National Coffee Research Institute (NACORI)	To conduct and manage basic and applied research of strategic nature and national importance in all fields pertaining to coffee and cocoa
8. Abi Zonal Agricultural Research and Development Institute	Abi ZARDI covers an agro-ecologically diverse and geographically strategic region of Uganda known as West Nile Agro-Ecological Zone comprising 8 districts including Arua, Nebbi, Zombo, Maracha, Koboko, Yumbe, Moyo and Adjumani. The focus is on varieties such as beans, cassava and maize, which are major staples in the region, as well as cereal crops such as sorghum.
9. Buginyanya Zonal Agricultural Research and Development Institute	Carrying out applied and adaptive research in the Mountain Zone in Eastern Uganda.
10. Bulindi Zonal Agricultural Research and Development Institute	Carrying out applied and adaptive research in the Lake Albert Crescent Zone and covers five (5) Districts of Hoima, Masindi, Buliisa, Kibaale and Kiryandongo.

11. Kachwekano Zonal Agricultural Research and Development Institute (KaZARDI)	Carrying out applied and adaptive research in South Western Highlands
12. Mbarara Zonal Agricultural Research and Development Institute (MbaZARDI)	To Develop, Adapt and Effectively Disseminate Appropriate Agricultural Research Technologies in the Lake Victoria Crescent Agro-ecological Zone.
13. Mukono Zonal Agricultural Research and Development Institute (MuZARDI)	Responsible for carrying out applied and adaptive research in the Lake Victoria Crescent Agro-ecological Zone.
14. Nabuin Zonal Agricultural Research and Development Institute (NaZARDI)	Carrying out applied and adaptive research in the North Eastern Semi-dry area covering the former Karamoja region
15. Ngetta Zonal Agricultural Research and Development Institute (NgAZARDI)	Carrying out applied and adaptive research in the Northern part of the country.
16. Rwebita Zonal Agricultural Research and Development Institute	To conduct and manage applied and adaptive agricultural research and facilitate the development and dissemination of appropriate technologies that address specific needs of the Western Highlands Agro-ecological zone.

Source: www.naro.go.ug

Within the broad mandate of NARO, each institute has its focused commodity programmes and units for research and development as Table 1 depicts. The multi-enterprise approach implemented by NARO through its diverse institutes presents an opportunity for considering the different needs/interests and constraints of women and men such as food security, household nutrition and income for improved livelihoods. Given that the institutes' mandates are based on agro-ecological zones, this presents another opportunity for promoting geographical inclusiveness. However, while the institutes' structure and mandates provide opportunities for conducting gender responsive research, findings indicate otherwise as discussed in subsequent sections.

1.1.2 Rwanda Agriculture Board (RAB)

The Rwanda Agriculture Board is governed by Article 10 of Organic Law No 38/2010 of 25/11/2010. The Board is responsible for overseeing and managing agricultural research in the country with the following vision, mission and core values:

Vision: Improved food security and livelihoods of all Rwandans by transforming agriculture from subsistence into modern farming through generating research and extension innovations that generate sustainable crop, animal husbandry and natural resource management.
Mission: Developing agriculture and animal husbandry through their reform, and using modern methods in crop and animal production, research, agricultural extension, education and training of farmers in new technologies

Core Values and goals: Responsiveness to farmers' needs Delivering Demand-driven, market oriented research and extension.

Although the core functions of RAB (Annex 3) together with the mission, vision and core values do not reflect gender specific considerations, most of the RAB Strategic Plan (2013-2018) objectives are gender responsive. One of the objectives is: *"empowering and promoting proactive participation of all gender categories in agricultural development"*. The following are objectives of the Strategic Plan;

- Enriching genetic resources for food, nutrition, income and environmental security
- Increasing on-farm productivity levels and reducing yield gaps through integrated research and extension
- Expanding and sustaining base of natural resources in the production of plant and animal source foods
- Reducing postharvest losses and adding value for increased to competitive markets
- Increasing the competitiveness of agricultural commodities through value chains and entrepreneurship development
- Empowering and promoting proactive participation of all gender categories in agricultural development
- Building infrastructural, financial and institutional capacities to enhance research and extension competencies.

Source: Rwanda Agriculture Board Strategic Plan (2013-2018)

In terms of structure, RAB has four (4) agricultural zones and fourteen (14) centres where agricultural research activities are managed. These are - South Zone (Rubona and Songa in Huye District; Muhanga in Muhanga District; Kigembe in Gisagara District and Sigira in Nyamagabe District); North Zone (Kinigi in Musanze District and Rwerere in Burera District); West Zone (Ntendezi in Rusizi District; Gakuta in Karongi District; Gatindori and Tamirain in Rubavu District) and East Zone (Nyagatare, Nyagatare District; Karama in Bugesera District; Ngoma in Ngoma District).

1.3 Study Methodology

The study employed a mixed method approach that enabled the collection of both quantitative and qualitative data. Primary data was collected using the field-based inquiry while a desk review was done to collect secondary data from NARO and RAB Institutes.

1.3.1 Data Collection Methods

Desk Review: The research team reviewed the organisations' Human Resource Manual, Training policy, strategic plans, gender policies and research documents including proposals, reports and publications to understand the gender responsiveness of the institutions.

Field-based methods: Field data was collected using a survey to assess researcher capacity to conduct gender responsive research; semi-structured interviews with Principal Investigators as well as key informant interviews with top and middle level managers, gender focal persons, Training Officers and M&E persons.

Sampling for the questionnaire Survey: In Uganda, a staff list as of June 2015 for the whole of NARO was used as a sampling frame. It targeted all scientists and technicians totaling 457 (Table 2).

Table 2 Number of staff by institute in NARO

Institute	Men	Women	Total
National Agricultural Research Organisation Secretariat	2	2	4
National Agricultural Research Laboratories	40	23	63
National Crops Resources Research Institute (NaCRRI)	38	16	54
The National Fisheries Resources Research Institute (NAFIRRI)	26	10	36
The National Semi-Arid Agricultural Resources Research Institute (NASARRI)	31	6	37
The National Forestry Research Institute (NAFORRI)	22	10	32
National Livestock Resources Research Institute (NaLIRRI)	28	9	37
National Coffee Research Institute (NACORI)	11	4	15
Abii Zonal Agricultural Research and Development Institute (AbiiZARDI)	19	4	23
Buginyanya Zonal Agricultural Research and Development Institute (BuZARDI)	17	2	19
Bulindi Zonal Agricultural Research and Development Institute (BuZARDI)	16	5	21
Kachwekano Zonal Agricultural Research and Development Institute (KaZARDI)	15	5	20
Mbarara Zonal Agricultural Research and Development Institute (MbaZARDI)	13	7	20
Mukono Zonal Agricultural Research and Development Institute (MUZARDI)	10	11	21
Nabuin Zonal Agricultural Research and Development Institute (NaZARDI)	17	2	19
Ngetta Zonal Agricultural Research and Development Institute (NgAZARDI)	13	5	18
Rwebitaba Zonal Agricultural Research and Development Institute (RZARDI)	16	2	18
Total	**334**	**123**	**457**

Sampling for the qualitative key informant interviews: Selection of the key informants was guided by the information needed. The top and middle management at the NARO and RAB secretariats were targeted to provide information on the institutional gender position and status. Selection of Key informants (Principal Investigators) and Directors as key informants was purposive. Two researchers and two projects were selected per institute. Case studies with researchers that were trained in gender and applying the acquired skills (success stories) and those that were trained but not applying the skills were interviewed**.** Cases that met the selection criteria for the two categories were nominated by either the Gender Focal persons, institute Directors or other Scientists. A list of tools and sample size is given in Table 3.

Table 3 Tools and sample size

Tool	Uganda			Rwanda		
	F	M	Total	F	M	Total
Policy, institutional status and management - Key informant guide (top and middle managers)	2	9	11	1	0	1
Gender responsive research - Monitoring and Evaluation tool for Principal Investigators	3	7	10	0	7	7
Key informant guide for Gender Focal person	4	3	7	1	1	2
Self-administered questionnaire for Scientists	61	157	218	15	22	37
Case studies (gender trained and applying)	1	0	1	0	1	1
Case studies (gender trained but not applying)	1	1	2	0	0	0
Training Officers/Human Resource Managers	2	2	4			
Total			**253**			**48**

1.3.2 Data collection

Data from the survey was collected with the assistance of assistants based at each of the centres. They assisted in distributing the instruments to all scientists and technicians in the centres, followed up and retrieved the questionnaires from them. The questionnaire was self-administered. Some of the questionnaires were distributed via e-mail in situations where the scientists were not present at the centres. A total of 436 questionnaires were

distributed in Uganda but only 218 were returned giving a response rate of 50%. A similar approach was adopted for RAB whereby180 questionnaires were distributed in Rwanda although only 37 were returned with a response rate of 21%. The low response rate in Rwanda was due to the low enthusiasm by participants to respond to the survey.

1.3.3 Data Analysis

Quantitative data were analysed using SPSS software. Descriptive statistics were used including measures of central tendency, and measuring presence of association using correlation and Chi square tests. Qualitative analysis was meaning focused based on themes using qualitative content analysis, whereby data was organised according to participant categories per research issue, then themes identified, categorised and merged across categories to produce meanings.

1.4 Respondent Characteristics: Uganda and Rwanda

1.4.1 Type of organization

Uganda's public agricultural research organization has three levels of operation: the secretariat which serves as the headquarters, the national agricultural research institutes with mandate for research targeting specific agricultural commodities, and the zonal agricultural research and development institutes (ZARDI) which focus on adaptive research.

Respondents were selected from all the three levels. At each of the three levels, there were more men staff members than women. Overall in the sample, about 72% were men while 28% were women (Table 4). Fifty per cent (50%) of the respondents were working with the sub-regional Zonal agricultural research and development institutes (ZARDIs), while 48% were from the national agricultural research institutes. For Rwanda (Table 5), 51% of the respondents were men while 49% were women. In the national agricultural research institute, 43% were men while 38% were women. At the sub-national level (zonal), 16% were men while 0nly 2.7% were women. As in Uganda's case, in Rwanda, men staff were more than women with a much wider gender gap at the subnational (zonal) level.

1.4.2 Education

For Uganda, close to 50% of the respondents had a bachelor's degree while about 47% had a PhD and or Masters degree; only 3% had a diploma (Table 4). For Rwanda, 51% had either a PhD or master's degree while 49% had a Bachelors degree (Table 5).

1.4.3 Research disciplines of participants

The research disciplines of the respondents are categorized into two major research inclinations, namely, the biophysical sciences representing disciplines like breeding, horticulture, soil science among others; and the behavioral sciences, which represented social economists and social sciences. For Uganda, about 61% of the respondents were biophysical scientists, 10% were social sciences/economists (Table 4). For Rwanda, 57% of the respondents were inclined towards biophysical sciences, while 19% were inclined towards social sciences (Table 5)

1.4.4 Job position

In terms of job position, for Uganda, 46% were research scientists, while 43% were technicians, the rest were in administrative positions (Table 4). For Rwanda, 51% were technicians, while 46% were researchers, the rest were administrators and accounted for 2.7% (Table 5).

Table 4 Characteristics of survey respondents by sex in Uganda

Type of organization respondents were working for (n=218)	Men	Women	Total
National agricultural research secretariat (%)	0.90	0.45	1.35
National agricultural research institute (%)	33.02	15.14	48.16
Sub-national agricultural research institute, e.g. Zonal centre (%)	37.16	12.84	50.00
Other	0.45	0.000	0.45
Education level attained (n=217)			
Have a PhD or Masters degree (%)	35.00	11.98	46.98
Bachelor's degree (%)	33.18	16.28	49.46
Diploma (%)	2.77	0.46	3.23
Major area of research inclination of the respondent (n=217)			
Bio-physical sciences (%)	44.95	15.6	60.55
Socio-economists (%)	5.96	3.7	9.66
Others (%)	20.6	9.2	29.8
Job Position of respondent (n=216)			
Administrators (%)	6.9	4.2	11.1
Scientists (%)	34.26	11.57	45.83
Technicians and others (%)	30.09	12.96	43.05
Major activities undertaken by the respondent at work (n=109)			
Bio-Physical (%)	46.79	22.01	68.80
Socio-Economic (%)	5.5	2.7	8.2
Management and Admin. *(%)*	17.43	5.5	22.93

Table 5: Characteristics of survey respondents by sex in Rwanda

Type of organization respondents were working for (n=37)	Men	Women	Total
National agricultural research institute (%)	43.24	37.84	80.08
Sub-national agricultural research institute, e.g. Zonal centre (%)	16.22	2.7	18.92
Education level attained (n=37)			
Have a PhD or Masters degree (%)	32.43	18.91	51.34
Bachelor's degree (%)	27.03	21.62	48.65
Major area of research inclination of the respondent (n=37)			
Bio-physical sciences (%)	35.14	21.62	56.76
Socio-economists (%)	5.4	13.5	18.90
Others (%)	18.91	5.4	24.31
Job Position of respondent (n=216)			
Administrators (%)	0.00	2.7	2.7
Scientists (%)	32.43	13.5	45.93
Technicians and others (%)	27.03	24.32	51.35
Major activities undertaken by the respondent at work (n=27.)	**Men**	**Women**	**Total**
Bio-Physical (%)	51.9	18.5	**70.4**
Socio-Economic (%)	3.7	7.4	**11.1**
Management and Admin. *(%)*	7.4	11.1	**18.5**

2. Institutional Factors Influencing Gender Responsive Research in NARO

The study set out to assess the institutional factors (specifically the policies, practices, structural and organization culture) influencing gender responsive agricultural research. We define gender responsive research (GRR) as research that considers gender needs/interests, priorities, opportunities, constraints and ensures that both women and men participate in, and benefit from the research processes. GRR produces agricultural products and interventions that meet the needs of men and women and reduces gender disparities.This section answered two research questions: 1) what are the policy and practice drivers/motivators and barriers/inhibitors for gender responsiveness in national agricultural research organizations; 2) What are the structural drivers/motivators and barriers/inhibitors for gender responsiveness in national agricultural research organizations? The section presents the theoretical framework underpinning the institutional analysis followed by the findings.

2.1 Theoretical framework

Although the need for gender responsiveness in agricultural research has been appreciated globally, many organizations continue to be gender blind in their operations, limiting opportunities to achieve gender parity goals. Policies and institutions that guide the operations of these organizations could offer possible explanations and opportunities to address the shortcomings. In the context of this study institutions are defined as the 'rules of the game' of the society (Leković, 2011; North, 1990) such as a set of rules, compliance procedures and moral and ethical behavioral norms (Hodgson, 2006; Knight 1992). They constitute a framework of norms, rules and enforcement mechanisms**.** It is necessary that research institutions formulate and implement relevant regulations and strategies such as personnel recruitment and management systems that promote gender responsiveness.

Organizational policies are enforced and promoted by institutional leaders. Thus, organizational leadership plays a key role in implementing policies and ensuring operations that enhance gender responsiveness. A report by the International Development Research Centre (IDRC) (n.d) has noted that integrating gender in agricultural research calls for strong leadership, commitment to gender and political will[3] by research organization and project managers. One of the leadership roles is to ensure that they have adequate numbers of staff with the requisite knowledge, attitudes and skills to formulate and implement gender responsive research. This should build on Management staff and individual researchers' recognition and appreciation of the relevance of integrating gender in agricultural research (Meizen-Dick et al, 2011). Management can ensure that gender training for staff is continuously supported to create capacity for gender responsive research (Recke and Ngugi, 2005; Meizen-Dick et al, 2011). Gender responsive budgets to support capacity building and gender focused research activities including the organizational culture and a reward system that incentivizes gender responsiveness should be in place. The organizational culture must be one that provides space for employees to exchange lessons and experiences on gender responsive research (Meizen-Dick et al, 2011).

[3] Political will refers to an institution's ability to support the integration of gender, in policies and budgeting

Policies and good practices that supportive gender research must be augmented with appropriate structures and staffing if gender responsive research in agricultural organisations is to thrive. Reliable human resource accountability mechanisms must be in place to track institutional gender actions. These may include gender focused monitoring and evaluation mechanisms that track research results and products, staff capacity, existing incentives and sanctions, among others. Such an understanding may pave the way for improvement and positive change.

2.2 Findings

2.2.1 Gender responsive practices in NARO: Walking the talk or rhetoric?

This section presents the existing gender responsive institutional policies, structures and practices in Uganda's NARO. Focus is on planning and priority setting of the research agenda; the situation on gender policy (ies)/guidelines and gender staff structures. It also details the rewards and accountability mechanisms in place to ensure translation of existing policies and strategies into action. In addition, key drivers, barriers and implications to gender responsiveness are discussed.

Research prioritization: Does Gender matter?

Qualitative data from interviews with top and middle management reveal that research priority setting involves direct stakeholder engagements and use of documented evidence. At national level, NARO Management conducts stakeholder consultations every 5 years, while all its institutes carry out a similar exercise on an annual basis. The latter involves consultations with farmers, donors, government departments, researchers, and civil society organizations among others, to set research priorities and solicit feedback on program performance and developed technologies. An exploration of the gender responsiveness of the stakeholder consultations and priority setting revealed conflicting findings from the two levels of management. While top management described the process as gender responsive, institute directors reported the process to be gender blind, reflecting a disconnect between what is said and practiced. In relation to this, below is a narrative from top management:

> In order to set research priorities we use a bottom-up strategy; as a routine, every year the ZARDIs hold annual meetings where all stakeholders are invited. In such meetings, needs of different categories of beneficiaries including women are identified so that they inform the research agenda. At times different institutes conduct baseline surveys on farming systems. The information from these baselines is disaggregated by gender. Therefore, information about men and women comes out clearly from gender disaggregated data reports. Sometimes when new projects are starting they require baselines against which to assess impact. Men and women are interviewed separately to get their unique needs. Research priorities are identified after reviewing project reports, baselines and impact studies, annual reviews. In our understanding of gender responsiveness, we go beyond consideration of the numbers of men and Women participating in activities but also whether the needs of these different gender categories have been addressed (Top manager, NARO)

On the contrary, several institute directors reported gender blind stakeholder consultation processes during the priority setting phase. Several voices pointed to the dominance of men during consultative meetings. This limits women's voices in important research spaces and ignores their needs, preferences, engagement and benefits, leading to gender blind research processes and outcomes. According to Elias (2013) gender responsive research considers the roles, responsibilities and priorities of both men and women, and is intentionally designed to reach and benefit both women and men. An institute director commented that:

> It is like bottom-up approach from farmers. We prioritize for example like in this meeting and collect points of interest from the farmers. When we call for meetings, we call both men and women though it is men who are always the majority and in many instances, we don't target women specifically…. there is no special encouragement for women to attend.

The Gender Focal Persons[4] who are responsible for supporting gender integration were not always assigned any specific role in the priority setting processes further attesting to the absence of systematic efforts to address gender at this important stage in the research process. Agricultural development affects women and men differently, thus, subordinating women's voices not only undermines their productivity but also the capacity of programme to achieve equitable outcomes (IDRC,n.d). Involving both men and women at the agricultural research prioritization stage enables researchers to pursue research areas that address the needs of different gender groups. Women play a key role in agricultural production and therefore important that agricultural researchers recognise their unique needs, challenges and opportunities (Meinzen-Dick et al, 2011). According to IDRC (n.d), a gender-blind priority-setting process may not yield a gender-balanced project portfolio. Priority setting would require understanding crops, animals and markets appropriate for men and women as well as women's roles and benefits from these. It would also call for stakeholder processes that engage both women and men.

Existing Policies, strategies, and structures

There were two key policies that guided NARO's operations, notably, the strategic plan (2008/2009) and the Human Resource Manual. There was no gender specific policy, strategy and guidelines to support gender responsive research which is indicative of the organization's limited advance in strategizing for gender responsive research. However, during the conduct of this study, there was an ongoing effort by NARO to develop a gender and diversity strategy. The lack of a gender policy and guidelines was echoed by top management, some institute directors, gender focal persons and researchers. Recke and Ngugi (2005) have argued that for agricultural organisations to be gender responsive, changes must occur at different institutional levels, in agenda setting, policy-making, planning, implementation and evaluation. These may be facilitated by new staffing and budgeting practices, training programs, policy procedures and guidelines that remain very weak within the NARO framework.

Gender and diversity initiatives in NARO

Gender initiatives in NARO largely adopt a project focus. Between 2012 to 2014, the Association for Strengthening Research in Eastern and Central Africa (ASARECA) financed a number of projects in which integrating gender was emphasized. Other research projects which have had a strong emphasis on gender integration include the East African Productivity Enhancement Program Cassava Centre of Excellence (2009 – 2014) and the Pre-Cooked Bean for improving food, nutrition and income project financed by the International Development Research Centre (IDRC) (2014 – 2017). However, while these programs have established a gender footprint among the few scientists directly involved, there was no evidence of impacts at the wider institutional level. The only institution wide process observed was a gender and diversity strategic development process initiated in 2016 and was on-going at the time of this study. The process was started with a survey of scientists' opinions on what the strategy should entail.

[4] These are people identified by Management to guide the integration of gender in the research processes within their Institutes

Gender Focal Persons (GFPs): A structure in balance

The establishment of the gender focal person structure was the vision and strategy of the former Director General of NARO, but was also driven by donor requirements. NARO donors such as the World Bank often demand gender integration in research proposals as a key criterion for funding. A national Gender Focal Person (GFP) was formally appointed and would coordinate all institute GFPs. Each institute was required to second an individual to serve as a gender focal person. The selection of the institute GFPs was informally done by the Directors based on two criteria, namely, staff member's interest in gender and/or one having attended a gender training. No guidelines for their work were provided. The GFPs were expected to support other researchers in the integration of gender in research from proposal development to project implementation phases.

When asked about their responsibilities, gender focal persons mentioned providing gender support to researchers while developing the work plans, supporting the development of a gender strategy, assisting students and researchers to integrate gender in their projects, guiding and critiquing research work, consultations by scientists on engendering project proposals and in the development of questionnaires.

On the other hand, some expressed concern on being consulted on rare occasions and often when scientists are in a 'crisis basis' when donors make gender a requirement for project proposal approval or after their work plans have been queried as the following quotation demonstrates:

> Involving the GFP in a research process is often done on a crisis basis. Scientists only invite me to give advice after their workplans have been queried that they have to address gender, and have been told 'you must incorporate gender'. With this they call me to integrate gender in their already formulated activities. World Bank funds NARO activities, and in the Aide Memoire there is perennial comment that gender hasn't been addressed.. Currently I have lost interest to support them because I am not formally appointed…(Female Gender Focal Person).

Challenges faced in the operationalization of the role of the gender focal person

Findings showed that most gender focal persons were aware of their title and some had contributed to supporting gender research. The different key informants (Table 6) pointed out various challenges affecting the operationalisation of the GFP structure. These include lack of a clear vision for gender in agricultural research. One of the GFPs noted that gender integration has become more of a talk (by NARO leadership) than a practice and summed it up that: "…*to me gender has been much of a talk but there is no walk on it…".* The GFPs lack formal and clear terms of reference for the position, have no gender budgets, no facilities and are not adequately skilled for their work. Besides, recognition and involvement of the gender focal persons at institution level was in some cases weak. Some projects did not involve these individuals, and they work in an environment that does not hold them accountable. At the Secretariat level, the informality of the position was widely acknowledged. Because of poor coordination and informality surrounding the structure of a GFP, there were two national gender focal persons working independently without coordination resulting in some disorder and conflict. A previous study by Manyire and Apekey (2013) noted that there is tendency by agricultural organisations to continue 'doing business as usual' despite putting in place institutional mechanisms to integrating gender in their activities. They have argued that these commitments are rarely followed up with requisite financial resources for transforming the commitments into actual, realistic and practical activities, with measurable outcomes that relate to transforming the current gender status quo (ibid).

It was also expressed by a top NARO manager that *"staff appraisal and accountability systems do not support gender integration."* The absence of a gender responsive monitoring and evaluation mechanism runs the risk of ignoring the real impact of research projects on the lives of both women and men. According to World Bank (2012a), a gender-sensitive monitoring and evaluation framework facilitates understanding how the project has achieved improvements in the lives and overall social and economic well-being of women and men and enables to improve project performance during implementation, facilitates midterm adjustments as well as lessons for future projects (ibid). Short of this, the impacts of agricultural projects on women and men farmers and households as well as opportunities for improvements remain unknown. This would require gender competent M& E staff as well as supportive environment to accomplish the process.

Challenges notwithstanding, efforts such as putting in place the gender strategy and GFPs structure signal opportunities for gender integration in NARO. The efforts have resulted into greater awareness among researchers on the relevance of gender. One GFP said this: *People… have realized the importance of gender and what gender entails. The perception that gender is only for women is changing as staff get to understand that gender is not only a women issue".*

Table 6 Participant voices on the challenges affecting the operationalization of Gender Focal Person structure

Challenges	Data source		
	GFPs	Top management	Scientists
There is lack of established position and ToRs for the GFP, Gender activities are often adhoc, not consistent	✓		
Lack of gender experts and yet the demand is growing,	✓		
Lack of clear budgets to address gender issues and activities, even those who win grants which are supposed to be gender responsive end up not implementing the gender ideas and activities.	✓	✓	
Gender only becomes an issue when it is mentioned but there is no proactive attempt to integrate it in their work	✓		
The gender focal persons were not trained adequately. They just attended a few short courses. There is no capacity in gender in the organization The people who are hired [gender people] are only to reflect/indicate activities on their projects but on a personal basis there is no training to such personnel	✓	✓	✓
We don't have a real unit at the Institute level that we can say is a gender unit or a team. And sometimes I may have to be reminded that I am a gender person because of many attached assignments which are not gender related.	✓		
There is also negativity about gender responses due to lack of sensitization	✓		
There is no reward given for Gender integration. I have tried to push the reward so that it can attract scientist researchers to include gender issues in their plans, results and reports. However, it has been in vain	✓		
I am not formally appointed as the focal person. I am a programme leader and double as a focal person because of my interest in gender. They do not have formal appointment letters for this extra assigned duty, but we're looking forward to address this	✓	✓	✓
To me gender has been much of a talk but there is no walk on it	✓		
This position is not in the NARO structure. It is adhoc so this person is assigned gender tasks as the need arises		✓	
The gender focal persons are just there as figures and not by formality. So if they fail to do any gender responsive work/integration, they cannot be held accountable.			✓

Source: Fieldwork findings, 2016

The survey corroborated the qualitative findings. Despite existence of the GFPs, a majority of the respondents were either not aware that there was gender expertise at their workplace (53%) or not sure (20%). Only 27% indicated they had gender expertise (Table 7). This implies that either the researchers were not aware of the existence of the GFPs or they did not consider them people with gender expertise.

Table 7 Availability of a gender expert at the work place

Response	Men (%)	Women (%)	Total (%)
Yes	21.1	6.0	27.1
No	39.9	13.3	53.2
Not sure	10.6	9.2	19.7
Total	71.6	28.4	100.0

2.2.2 Institutional Gender responsiveness: Drivers and constraints

The previous section has articulated the existing gender institutional environment in NARO and the inherent gaps and opportunities. Opportunities for gender consideration exist in the stakeholder based priority setting process and in the informal gender focal persons structure. The on-going gender and diversity strategy once finalized is likely to give space and greater support for gender responsive agricultural research. Donor supported projects such as the East African Agricultural Productivity project (EAAPP) and the pre-cooked bean project have given a gender foot print among the scientists, research workers and beneficiaries. In this section we focus on implicit drivers and barriers to gender integration in agricultural research.

Drivers

Leader champions for gender

The gender efforts in NARO are traceable to a former female Director General of NARO, who also initiated the GFP structure nationally. One GFP observed a similar leadership effort for gender by one of the current female top managers at the secretariat. The current leader is the one spearheading the gender and diversity strategy in NARO, and was directly involved in ensuring that institute directors and scientists comply with the survey on gender and diversity in NARO. By virtue of these positions resources can also be easily mobilized to support identified gender efforts such as the establishment of the GFP, the training they received and the current survey.

Support by Management

Qualitative findings in Table 8 show what top management in NARO and scientists had to say about support for gender in research within NARO. Both management and scientists agreed that goodwill, encouragement, and recognition of the importance of gender in research by leadership are common narratives. In addition to voicing support and encouraging gender integration, support for training in gender exists, as well as issuing calls for proposals that take gender into consideration. There is a deliberate practice that provides for more women to be recruited into the workforce. Representatives of top management mentioned a deliberate effort to integrate gender due to donor requirements and appreciated gender including putting in place some measures to encourage gender responsiveness. Such measures include support for staff gender training and ensuring that proposals to government and other funding organizations include gender as a key criterion for funding.

Table 8 Participant views on whether NARO leadership supports gender integration

Leadership support for gender integration	Top Management	Scientists
Encouragement to integrate gender		
We have good will to support and integrate gender activities in our programmes. Within the institute, there is a deliberate system to integrate gender. Some donors require proposals to have a section for gender. Therefore, my role is to ensure that in proposals the gender section is taken care of. At the top management, there is at least a political will and under competitive grants, there is also funding provided The top management is supportive of gender and they are always pushing to see that more women participate though the numbers are still limited During review meetings, top management strongly advocates for gender mainstreaming in research. Top management strongly encourage research scientist to integrate gender issues as they develop proposals. The challenge is the scope of how it is dealt with in terms of data collection, analysis and reporting. Most scientists only report by gender(men and women) without critically focusing and analyzing activities, constraints and needs by gender ...With proposal development and planning there is mention or reminders to be gender compliant. However the concept of gender is not well understood, except that people will look for or share how many Women and men are present in meetings. Of late there has been an effort to encourage scientists to be gender sensitive…	✓	✓
Appreciate the importance of gender		
NARO appreciates the importance of gender. It started in 1990's led by Dr Phina Opio, then Director of NACCRI. Training and sensitization were conducted. There were efforts to make sure that proposals for government and other funding organizations included gender. Gender was one of the criteria for assessing proposals for funding Yes, they regularly convey the importance of integrating gender in our intervention approaches so that both men and women benefit from the adopted technologies Leaders support the importance of gender though this is not really placed as integral to the processes/systems. Leaders have echoed the importance of gender, but operationalizing it has been lacking. Leaders have always encouraged scientists to ensure gender but mainly efforts are focused at dissemination level but no looking at the early aspects of the research At meetings or during visits the leaders say when planning that scientists need to take care of gender, including the youth, the disabled, the old, men and women issues	✓	✓

Source: Fieldwork findings, 2016

External influence: Donor demands

The implementation of NARO's research mandate is hugely supported by donor funding such as the Bill and Melinda Gates Foundation, the World Bank, International Development Research Centre (IDRC), Carnegie Corporation, Rockefeller Foundation, ASARECA and The Forum for Agricultural Research in Africa (FARA). Many of these donors put gender conditions for them to fund research projects. According to a NARO top management director, given that

more than half of NARO budget is supported by the donors and gender integration is often required by donor circles, the organisation is making efforts to comply with the popularity of gender. World Bank was particularly cited in emphasizing gender integration in research, underlining the role of external forces in influencing the integration of gender in NARO activities. Because of such a requirement, some researchers comply with the grant requirements although there is also a tendency of ignoring gender in the subsequent research stages. Below is statement on donor pressure:

> Some donors such as World Bank put pressure on the institute to integrate gender in research projects. This influences scientists to consider gender issues in their proposals because they know unless they do that, the proposal will not be funded (Gender Focal Person)

A respondent clearly put it that: *'gender is just looked at as a term or concept and we usually put it as a disclaimer to get the funding'*. While donors require researchers to integrate gender at the proposal level, they fail to follow the progress of gender integration in the entire process. The lack of follow up and enforcement mechanism renders the practice unsustainable. Statistical data (Table 14) also shows that close to 86% of the respondents considered donor influence to be key in influencing them to integrate gender in their research (68% men, 19% women). Respondents therefore mostly perceived gender as a funding requirement rather than a relevant development and professional practice.

Barriers

Lack of implementation strategy and resources

While top management tends to often speak about the need for gender during meetings with staff, efforts to translate the talk into tangible actions was limited. One institute director mentioned that: *… the will is there, but we've not followed it with appropriate corresponding action. Nonetheless, there are some attempts undertaken in this regard*. Some researchers also felt gender was more of rhetoric than reality except that due to donor demands, proposals with a gender component would be more likely to be funded. In support of this, a Scientist stated that: *the leaders have always talked about the need to address gender in research but there have been no practical steps taken.*

Some of the scientists interviewed cited weakness in the support leaders offered. The scientists viewed the leadership support and talk as just "conceptual" rather than "real," often lacking in incentives, resourcing, guidelines and monitoring to become an on the ground practice. One researcher observed: *"there is only a political will in concept but not in implementation processes."*

Researcher misconceptions: A key barrier to institutionalization of gender

> *The men scientists are scared that if gender is incorporated they would lose their jobs to the counterparts the women…(Female, Gender Focal Person).*
> *Research in NARO is structured around commodities and there is no commodity called gender… science is science, we are recruited to do science… (Male, Gender Focal Person)*

Perceiving gender as representation

Qualitative data demonstrates a misunderstanding of gender among NARO Directors, Gender Focal Persons and training officers in a manner that limits their appreciation of its relevancy in research. Gender was largely understood as representation in terms of number of women and men; as a women issue therefore pausing a threat to men, and not as a science (Table 9). Many felt it was a as a confusing concept.

There was a common perception especially among the directors and some GFPs that gender meant balanced representation of women and men in the different work positions, committees and having work facilities that support both women and men. A male director mentioned that: "G*ender is important and we look at gender issues in our work at the planning level and during implementation of our activities. We consider the percentage of men against women, we have toilets well marked for men and women, we consider the needs of people with disabilities but mostly women".* While paying attention to representation is not bad practice, it is not enough. There is also need to understand gender more holistically including the deep rooted causes, consequences for women and men, girls and boys as well as the best practices to address the challenges if management and the GFPs are to drive positive gender changes in the organization.

Gender as a women's issue

NARO Directors and GFPs mentioned that there was a general perception among most staff that gender was a woman's issue and actually a threat to men. Gender equality processes were seen to be mainly spearheaded by women, creating the impression that men should be less involved. A GFP mentioned that some men staff members were worried that if gender is strengthened, they may lose their jobs to women staff. He stated that*: "staff here think that gender is for women. The men scientists are scared that if gender is incorporated they would lose their jobs to their women counterparts …"* Such and related perceptions in Table 9 create negative perceptions of gender and may limit interest and practice for gender responsiveness especially among men staff. It was as noted that:

> There is a misconception of gender to mean only women and this drives men away. Men tend to think these are women's issues and they have no business even understanding them. So with our research in science discipline, little budget is set aside for gender activities because it is taken less serious

Gender as 'alien' to Science

Another perception mentioned by GFPs was that NARO staff perceive gender as something different from Science and were not seeing it as relevant to their training and disciplines. As already indicated in the previous sections, researchers were attempting to be gender responsive because it is currently a donor requirement but not necessarily as a result of an appreciation of its relevance. Some participants mentioned how gender had no place of abode in science while to others, it can "dilute Science." Researchers were therefore skeptical to embrace gender due to such fears as the following statements illustrate:

> Research in NARO is structured around commodities and there is no commodity called gender. Therefore, gender has no home and you keep pleading for it. Even pleading for it is not easy because scientist say that science is science we are recruited to do science and including gender seems to be taking us to a different direction (Gender Focal Person)
>
> Some staff are not interested in the gender subject. They regard it boring and unattractive (HR/Training Officer)
>
> Gender was not our original training so gender does not make scientific sense to many scientists…(Gender Focal Person)
>
> Scientists tend to think that technology is not gender based though some donors disagree…(Gender Focal Person)

Perceiving gender as a 'confusing concept'

Qualitative findings in Table 9 further show that gender was seen to be a confusing concept as mainly mentioned by Human Resource/Training Officers. Gender is still misunderstood as a move to promote women emancipation while leaving men behind, something that is negatively interpreted as 'misleading.' In relation to this, a Human Resources

Officer stated that: "*Gender is a confusing concept for me because I understand it as the relationship between men and women. We lost track because of the concept of gender emancipation that misleads women to be equal to men*". It was also mentioned that gender was not well understood given that it only stands for women's interests. Such narratives clearly indicate the prevailing misunderstanding of gender among NARO staff which calls for significant shifts to facilitate gender responsive practices.

Researcher misunderstanding of gender may affect the way they appreciate and apply gender in research. Manyire and Apekey (2013) argued that the limited appreciation of the relevance of gender by agricultural research and development organizations in Africa has limited the understanding of gender to having as many women as men members in farmer groups, having a gender expert and a few statements on gender in the organization's documentation that are not followed up for implementation. Such an understanding that was also reflected in the NARO system demonstrates the limited commitment to gender equality and inclusiveness by agricultural research organisations.

Table 9 Gender perceptions among NARO staff

Gender perceptions	Directors	GFPs	Human Resource/Training Officers
Gender as representation			
The need to balance men and women staffing is also coming up now. We carefully interest women to grow in their careers. They have a mentoring program whereby they nominate and encourage women to apply for further training	✓		
Requirements for physical infrastructures development provide for gender consideration—i.e, all physical structures should have provisions for breastfeeding mothers, separate toilets systems for men and women	✓		
The problem is that finding women who are Veterinarians is very difficult because of lack of qualifications and motivations. Whenever we are recruiting we ask ourselves how many women do we have to men's, and we find that we are catching up gradually. I worked with NALIRRI [national research institute] for ten years, I only crossed 3 months ago as a Director. Finding women Vets is really difficult, you run a program of 25 people with only 3 or 4 women. You want to give them positions but they are not there because in the training you find that a class of 42, there are 3 girls	✓		
Our science domain is not very attractive to women. So naturally we find fewer women scientists than men. We don't get many women candidates. There is no deliberate budget on gender areas or activities. Also, though there is that positivity, certain pertaining issues concerning women are best handled by a woman herself for effective outcomes which is lacking. There are activities that we would want women to take on like mobilizing women but they are scarce [women to do such activities]	✓		
There is that feeling that these days that to include gender means adding men and women to the project design and not necessarily understanding gender. Most researchers who claim to integrate gender do not know how to do it because there is no guideline as what should be done	✓		
With the committees, when we are arranging them we usually ask whether we have women in the committee or in programs and also in meetings. We can't have meetings exclusively for men. We have women incorporated to always remind us [in case they are feeling left out] for instance keen on what methodology are you going to use, what results are you tending towards, what backgrounds, and ask women, do you see women being involved in these programs We started a football team with the support of top management. This team incorporates gender because it has both women and men that play in the corporate league every month. All Staff show support to the team during the corporate league. There is no segregation on the selection of the team. Whoever is interested and willing is recruited on the team	✓	✓	
Gender is important and we look at gender issues in our work at the planning level and during implementation of our activities. We consider the percentage of men against women, we have toilets well marked men and women, we consider the needs of people with disabilities but mostly women. The importance of gender is based on the fact that women are multi-taskers the good of their families and we have noted that when a woman is paid money, she thinks of her children and so when a woman is supported, the man is also helped. There are many women who are in charge of their families even when they are married. Women bear much of the burden of care. A successful woman means the man is also successful	✓	✓	
Most of the women we have here do not do technical work but rather are given roles as support staff for example cleaners. Actually of recently our cleaner was pregnant and she was finding it difficult to handle though she had to work		✓	
Gender as a women's thing			
Gender is still seen as a women's thing. Those interested seem to be women which does not help men understand that gender is for us all.	✓		

Our men colleagues ridicule gender issues and continue to see it as woman's thing	✓		
Staff here think that gender is for women. The men scientists are scared that if gender is incorporated they would lose their jobs to their women counterparts …		✓	
My perceived challenge is the perceptions of people that gender is a women's thing and not taking up the needed interest….		✓	
People are biased about gender and understand it to be a phenomenon that favors women. Therefore there is need to sensitize people to change their perception and attitude		✓	
There is a misconception of gender to mean only women and this drives men away. Men tend to think these are women's issues and they have no business even understanding them. So with our research in science discipline, little budget is set aside for gender activities because it is taken less serious		✓	
Gender not seen as Science			
Gender was not our original training so gender does not make scientific sense to many scientists…		✓	
Scientists tend to think that technology is not gender based though some donors disagree…		✓	
Research in NARO is structured on commodity and there is no commodity called gender. Therefore, gender has no home and you keep pleading for it. Even pleading for it is not easy because scientist say that science is science we are recruited to do science and including gender which was our original calling seems to be taking us to a different direction		✓	
		✓	
Gender as a confusing concept			
Gender is a confusing concept for me because I understand it as the relationship between men and women. We lost track because of the concept of gender emancipation that misleads women to be equal to men			✓
The other challenge is that people do not understand what gender is and they think it only concerns women. In addition, some people in leadership positions resist gender and do not want to get involved. I think it is because of esteem issues or because some are introverts			✓
Linking social science and natural science is not easy		✓	

Source: Fieldwork findings, 2016

3. Gender Capacity and application by NARO Researchers

This section presents an assessment of the gender competences among NARO researchers. It interrogates the level of gender skills and knowledge, attitudes towards gender, extent of application of gender skills among the scientists, and factors influencing application. The first part gives the theoretical framework. This is followed by the findings.

3.1 Theoretical framework for capacity assessment and factors influencing application

Attitudes towards gender are shaped in the mind of the scientist over time and through their experience with social cultural definitions of gender and personal gender ideologies, identity and world views (Douthwaite et al., 2001). Attitudes are nurtured and maintained by the societal and organizational culture in which one works (Mangheni et al., 2010, Sarapura & Puskur, 2014). Gender is therefore highly correlated with other sociocultural factors, including birthplace, residence, occupation, educational background, social status and networks, resource access, and income class (Pfeiffer & Butz, 2005). Attitudes and dispositions towards gender vary with the demographic characteristics of the individuals (Sarapura & Puskur, 2014; Yamnill & McLean, 2005) and this can influence learning and capacity development. Attitudes towards gender can be difficult to change even among research and development organizations (Sarapura & Puskur, 2014).

The capacity to conduct gender responsive research is critical. Researchers should have the capacity, the right attitude, supportive relationships from peers and organizational environment to integrate gender into their research cycle activities (Njuki, 2016; Njuki & Miller, 2013; Sarapura & Puskur, 2014). It is this that can result into gender transformative activities (Sarapura & Puskur, 2014). Assessing gender responsiveness of researchers and their organizational environment can help in identifying capacity gaps and in determining appropriate interventions (Sarapura & Puskur, 2014; Watts et al., 2007).

It is one thing to acquire the right attitude, knowledge, skills through training and other capacity development and another to succeed in applying at the workplace what was learnt. Applying at the work place is referred to as training transfer. This is the generalization and maintenance of what one has learnt from a training back to his or her place of work (Baldwin& Ford, 1988). Generalization implies being able to apply the new knowledge and skills learnt in settings that are dissimilar to the way one was trained, while maintenance is about continued use of the skills over time (Blume et al., 2010). Transferring training is however affected by three major factors (Bates et al., 2012; Russ-Eft, 2002). Operating as a transfer system of factors (Yamnill & McLean, 2005), the first set of factors that are known to affect training transfer are located in the trainee him or herself. Examples of these including: motivation to transfer, personal self –efficacy, personal capacity to transfer, personal expectations both positive and negative among others.

The second set of factors include: the training design, whether it had relevant content, contained training strategies and examples and opportunities that related with the trainees work, whether it was well structured and had clear strategies to enable application such as post training support, so that the trainee can apply the training when they get back to their work organizations. The third set of factors are called work environment factors which includes elements like presence of opportunities to use the training, having supervisor and peer support, having supporting policies, presence of an accountability and feedback system, absence of prohibitive cultures to transferring new learning, having rewards for using new learning among others (Bates, et al., 2007, Martin, 2010; Velada et al., 2007).

It is therefore important to note that enhancing training transfer starts right before the training is mounted, during the training and after the training (Blume et al., 2010). Strategies should therefore focus on the transfer design to

encourage training transfer so as to ensure high return on investments in training. For the gender courses targeted at agricultural researchers, there is need for interrogation of the pre-training, during training, and post training strategies in place to enhance training transfer. Specifically it is important to look at the nature of those strategies, whether they aimed at enhancing trainee motivation and capacity to transfer, or whether they focused on an effective training process, or improving the work environment. This study measured factors associated with the individual and work environment.

3.2 Findings

3.2.1 Researchers' perceptions about gender

The survey assessed the attitude of researchers towards gender based on their perceptions about gender beliefs and dispositions. Respondents indicated whether they agreed with a number of positive and negative statements related to gender (Table 10). The goal was to determine the kinds of beliefs scientists had about gender as a measure of their readiness to engage in gender capacity building programs and even apply what they learn. Attitude can affect motivation to learn and apply related learning. Findings indicated that more than 70% of the respondents disagreed with the negative statements, while over 90% agreed with the positive statement that it is important to address gender in agricultural research (Table 10). Generally, results show that most of the respondents had positive attitude towards gender and its relevance to research.

Table 10 Perceptions of researchers on gender beliefs and dispositions (n=218)

Perception statement	Agree	Disagree	Chi-square	Cramer's V
Is there a need to change gender relations?				
It is not good for development interventions to change gender relations between men and women as it can lead to household conflicts.	20.6	79.4	1.99 ns	0.095 ns
The existing division of roles between men and women in society is okay.	28	72	4.51*	0.014*
Is it possible to change gender relations?				
Development interventions can't change the division of roles among men and women in society.	9.6	90.4	0.00 ns	-0.001 ns
Development interventions can't change power relations between men and women in society.	13.8	86.2	0.41 ns	-0.04 ns
The position of women and men in society is already determined by God and agricultural research interventions can't do anything to change it.	13.3	86.7	0.30 ns	0.037 ns
Is gender important in agricultural research and development and suited in the African culture?				
I feel that gender is irrelevant to my work	6.5	93.5	1.61 ns	-0.086 ns
Gender is a social science and is not relevant to biophysical agricultural science disciplines	8.7	91.3	0.046 ns	0.015 ns
I feel that gender is a western concept not suited to African culture	8.7	91.3	1.64 ns	0.087 ns
It is important to address gender in agricultural research	94.5	5.5	0.074 ns	-0.018 ns
Is the development outcome of gender equity good?				
Efforts to empower women undermine men's power in society	13.4	86.6	0.012 ns	0.007 ns

It is not good for development interventions to change the way society expects men and women to relate as it can lead to household conflicts.	20.6	79.4	1.985 ns	0.095 ns

Analysis of the association between scientists' perceptions about gender and sex using the Pearson Chi-square test and Cramer's V found that the relationship was significant for only the statement that:

> *The existing division of roles between men and women in society is okay* (Pearson's Chi square value of 4.51, p=0.034 and Cramer's V of 0.034, p = 0.034) (table 10)

For this statement, men and women staff members of NARO differ regarding their perceptions. Table 11 shows the distributions of the responses by sex. More men (32%) than women (18%) were agreeable to the statement that the apparent gender division of roles is okay. Generally, even for statements where the relationship was not significant, more women researchers compared to men tended to disagree with statements that perpetuate women's disadvantaged position.

Table 11 Perceptions of scientists on whether the existing gender division of roles in society is okay (n=218)

The existing division of roles between men and women in society is okay	Men (%)	Women (%)
Agree	32	18
Disagree	68	82
Total	100	100

There was no significant association between the researchers' perceptions on both positive and negative statements (Table 10) and whether they had had gender training. Similar results were obtained for the variable whether they were biophysical scientists or social scientists. This implies that gender training and nature of discipline did not affect researchers' attitudes towards gender.

Significant and strong associations were found between the perceptions on the following statements and the education level (Figure 2). This implies that staff of various education levels viewed these key aspects of gender differently..

Efforts to empower women undermine men's power in society (Pearson's Chi-square value of 9.62, p=0.01 and Cramer's V of 0.211, r =-.214, p<0.01)

*It is important to integrate gender in agricultural research (*Pearson's Chi-square value of 5.484, p<0.05 and Cramer's V of 0.159, p<0.01).

Table 12 shows the distribution of the scientists' responses by level of education. For the statement on the 'Efforts to empower women undermine men's power in society' about 45% of those with post graduate level of education and 42% of those with a first degree and below indicated that they disagreed with this view. Forty three (43%) of the respondents who had a post graduate level of education and 52% of those with a first degree agreed with the view that 'it is important to integrate gender in agricultural research. Ninety-four (94%) of the respondents disagreed with the view that 'gender is irrelevant to their work', of these 46% had a post graduate level of training while 48% had a bachelors degree and less.

Table 12 Perceptions of scientists on selected significant gender belief statements by the level of education (n=218)

Perception statement	Has Post graduate training (%)	Has a first degree and below (%)	Total
Efforts to empower women undermine men's power in society			
Agree	2.8	10.6	13.4
Disagree	44.7	41.9	86.6
It is important to integrate gender in agricultural research			
Agree	43.3	51.6	94.9
Disagree	4.1	0.9	5.1
Gender is irrelevant to ones work			
Agree	1.4	5.1	6.5
Disagree	45.8	47.7	93.5

3.2.2 Gender competences for staff

Gender training for staff

Survey results (Table 13) indicate that only 28% of all the respondents had attended a gender course. Of these, 18% were men while 9% were women. Seventy-two (72%) percent of the respondents had never attended any gender course (53% men; 19% women). Most men and women respondents had never had never attended a short gender course.

Table 13 Attendance of a gender course by sex of the respondents (n= 218)

	Sex of the respondent		Total
	Men	Women	
Yes	18.3%	9.2%	27.5%
No	53.2%	19.3%	72.5%

The qualitative interviews revealed that gender trainings were not commonly organized at the research centers, compared to trainings in aspects such as agronomy, and crop protection or livestock management. Within the last 5 years no such gender trainings had been conducted. The practice is for staff to go for gender training organized elsewhere. Generally, NARO still has limited capacity to support the training. The following are related quotations on this:

> There is consensus on the valuing of gender training although this is not done at the institute level. Yes I see value in prioritizing gender because when you diversify and integrate gender, you get better results. We encourage scientist to include gender in their proposal writing (Human Resource Officer)

> I have never had any gender training however I read literature on gender but I value gender though many people think gender is about women. We are advocating for gender and that is why we have a focal person at the secretariat… (Human Resource Officer)

Gender skills and knowledge among staff

The qualitative assessment on the capacity of the scientists to conduct gendered research revealed a lack of adequate capacity of gender knowledge and skills. A gender focal person stated that: "*most staff do not understand gender and gender competences are lacking"*. Researchers expressed need for more knowledge and skills in how to conduct gender responsive research citing that very few researchers had been trained and that the training was inadequate in equipping them. The following statements depict what was said:

> More information on gender is needed for the scientists, because they are willing to learn, however, all scientists have only a limited understanding of gender and so cannot stimulate serious support. The lack of enlightenment on gender among scientists makes it difficult for people to confidently talk about it (Principal Investigator)

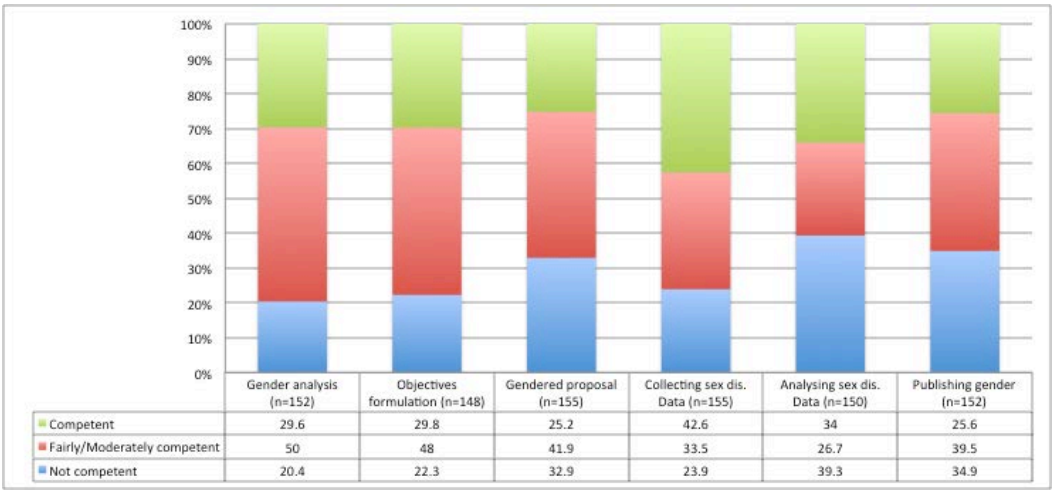
> Few Scientists have been trained in gender and few are implementing what they learnt, exposure to gender is still insufficient, few scientists are exposed to gender capacity and its assessment tools (NARO Director)

Respondents were asked to rate themselves on a scale of 1 to 3 '**Not competent'**, '**Fairly Competent'**, '**Competent'** respectively on the following aspects as indicated in Figure 1;

- Conducting a gender analysis to capture gender needs/interests & constraints
- Formulating goals and objectives relevant to needs of Women and men
- Developing a gender focused research proposal taking care of gender in the conceptualization, data collection and analysis and reporting plans
- Collection of sex disaggregated data
- Analysis of sex disaggregated data
- Writing a report or manuscript using sex disaggregated data

A vast majority rated themselves as either not competent or fairly competent to undertake these critical tasks in gender responsive research.

Figure 1 Percent level of competence in gender research cycle skills among research scientists

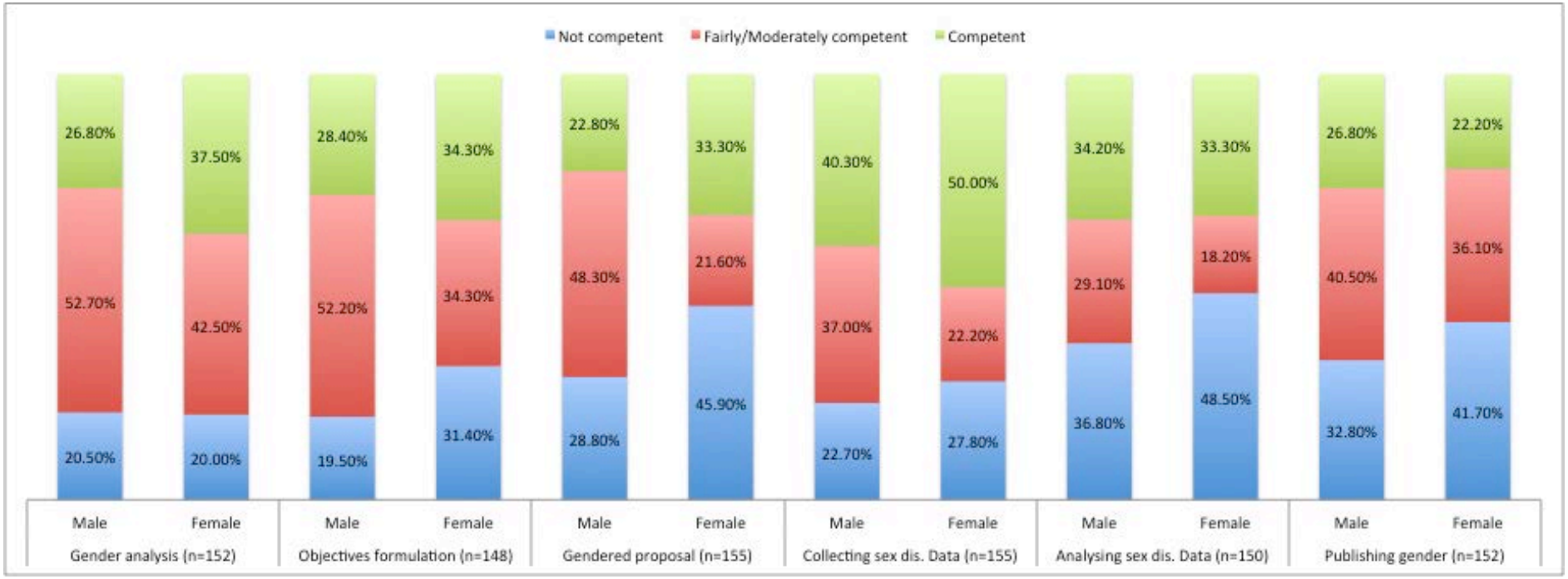


	Gender analysis (n=152)	Objectives formulation (n=148)	Gendered proposal (n=155)	Collecting sex dis. Data (n=155)	Analysing sex dis. Data (n=150)	Publishing gender (n=152)
Competent	29.6	29.8	25.2	42.6	34	25.6
Fairly/Moderately competent	50	48	41.9	33.5	26.7	39.5
Not competent	20.4	22.3	32.9	23.9	39.3	34.9

Women rated themselves more competent than men in gender analysis skills (38% compared to men 27%), objectives formulation (34% compared to 28% for the men), gender focused proposal writing (33% compared to 23% among the men), and collecting sex disaggregated data (50% compared to 40% among the men). Men perceived themselves more competent on analyzing sex disaggregated data (34% men, 33% women) and publishing gender research (men 27%, women 22%). Men perceived themselves moderately competent with gender analysis (53% compared to 43% of the women), objective formulation (52% compared to 34% for the women) writing gender focused proposals (48% compared to 22% of the women) (figure 2).

However, triangulating the self assessments with the case study interviews findings and the project gender responsiveness assessment score revealed that scientists who were regarded as 'gender champions' by peers and by themselves were found not to be competent in doing gender responsive agricultural research.

Figure 2 Level of competence in gender research skills among scientists across the research cycle by sex



Inadequate capacity building for gender responsive research

While the Human Resource Officers in various institutes were mandated to identify capacity development gaps, recommend appropriate training, and coordinate staff training, they paid little attention to gender training. They themselves had never received gender training and had little awareness of gender and its relevancy to research. They mentioned having not organized any gender training for staff in their institutes confirming the above observations.

While there was a common mention of the existence of gender focal persons in each of the research institutes, it was explained that gender focal persons were not gender specialists per se. The genesis of the gender focal person position was part of NAROs effort to have personnel able to support the research teams at each of the institutes. The focal persons were trained in gender and were in turn expected to train other scientists, support and ensure that gender was mainstreamed in the research process. While institutes were able to identify a volunteer and second them to NARO secretariat as gender focal persons, the full capacitation of these individuals towards gender competence was never completed. As such while each institute had a gender focal person, for many, building their capacity stopped at the initial gender meetings they attended. The resultant inadequate capacity in gender research skills among these focal persons was also confirmed by top management of NARO and the directors. This rendered the expected gender expertise in gender responsive research absent.

A gender focal person observed that: *"Gender competence is lacking but the organization doesn't see it as an issue"*: In relation to this, a NARO researcher also stated that:

> One day I observed a gender expert getting stuck during a presentation on how to explain something on gender and the person had to be helped by another person in the meeting…one needs to be up-to-date if they are to be an educator of gender…

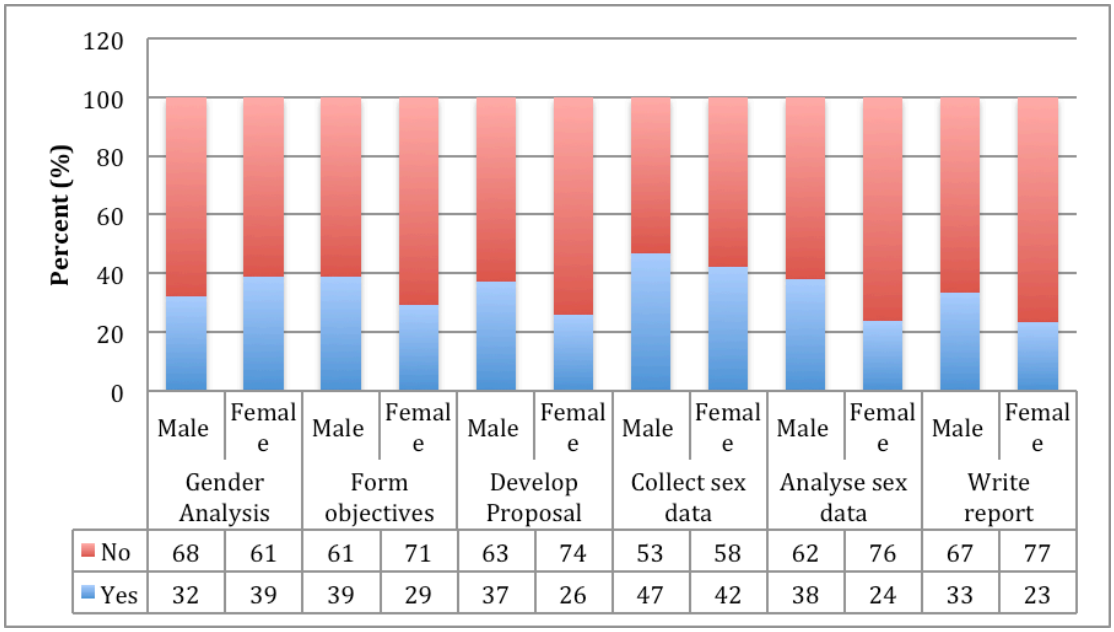
Despite the above observations, some gender focal persons had over the years received additional training in gender. Such individuals observed by others to have certain gender competences that have been recognized and utilized by fellow scientists from time to time.

Gender competencies researchers should have

Quantitative findings corroborated the qualitative findings about the lack of gender capacity among the NARO scientists. Research scientists that are engaged in adaptive and participative agricultural research and are considered competent in gender responsive research should be able to: conduct a gender analysis to capture gender needs/interests & constraints; formulate goals and objectives relevant to needs of women and men; develop a gender focused research proposal taking care of gender in the conceptualization; data collection and analysis and reporting plans; collect sex disaggregated data and 'analysis them ; write a report or manuscript using sex disaggregated data.

Figure 3 below shows that generally between 60% & 77% of the respondents whether men or women had never conducted or used any of the indicated gender skills in agricultural research. The skill that was conducted by more respondents whether men or women was the 'collection of sex disaggregated data. Here the count was 47% of the men and 42% of the women who had ever done this. Apart from gender analysis (32% men, 39% women), there were more men scientists who had used the gender research skills than the women ones. Could this attest to more opportunities for men to conduct research and therefore with a higher chance of practicing some gender research skill?

Figure 3. Whether scientists had ever used the gender research skill or not by sex of respondent (n=218)



Reasons for limited gender competences

Qualitative evidence attributed the limited gender competences to a range of factors including absence of operational guidelines and failure to enforce those that exist, coupled with the qualifications of people recruited to undertake agricultural research. Regarding the operational guidelines, one director mentioned how they were finding it difficult to be gender responsive due to the lack of tools to capture sex-disaggregated data and guide the conduct of gender responsive research in a more systematic manner. In addition, the few staff members who attended gender trainings did not share knowledge acquired with others on return to the workplace despite the NARO guidelines that include post-training peer to peer knowledge and skills sharing. In the view of Human Resource persons, failure to do so kept the rest of the scientists ignorant and misinformed about gender.

The disciplinary background of the scientists is yet another barrier to gender competence. Most researchers come from the bio-physical background and find difficulties to understand gender, a social science and how it can be applied in their disciplines and research activities. A Director mentioned how "*it does not make sense most especially for scientists whose background is pure science to be asked to integrate gender in a manner that is not clear."* This denotes the limited gender skills among researchers despite the training efforts so far extended.

3.2.3 Application of acquired training skills

The application of gender skills acquired after training is critical to gender integration in research. The study used a self-assessment by respondents who had attended gender courses about the extent to which they applied the skills they had acquired during the training (Table 14). Fifty one percent (51%) of the respondents had applied to 'some extent', 34% had applied to 'a great extent' while 15% had not applied what they had learnt.

Table 11 Level of application of gender skills by sex of the respondents (n= 218)

	Gender of the respondent		Total
	Men	Women	
Not at all	5.1%	10.2%	15.3%
To some extent	33.9%	16.9%	50.8%
To a great extent	27.1%	6.8%	33.9%

There was a significant association between the sex of the respondent and their perceived level of application of gender skills (Pearson's chi-square of 6.041, $p<0.05$). This implies that being a man or woman influenced application of gender skills acquired in training. Table 15 reveals that among women scientists 30% of those who had received a gender training had not applied anything at all compared to 8% of the men. Among those who had applied to a great extent, there were more men (41%) than women (20%). This gender disparity could be explained by the fact that the opportunity to apply gender skills was often associated with the donor funded projects; and men have an edge over women in winning competitive research grants.

Table 12 Perceived extent of application of gender skills after training by sex of the respondent

	Gender of the respondent	
Extent of application	**Men**	**Women**
Not at all	7.70%	30.00%
To some extent	51.30%	50.00%
To a great extent	41.00%	20.00%

3.2.4 Factors influencing application of gender at the work place

Donor demand

Donor influence was found to be a key factor that influenced researcher application of gender skills. Table 16 indicates that about 68% of men respondents were influenced by donor demand to apply gender into their research activities compared to only about 19% of women respondents. The influence of donors is tagged to the funding requirements for research projects where Scientists are required to include a gender component in their research projects (more on this has been explained in the previous section). A significance difference exists between men and women scientists regarding their perception of the influence of donors on their gender skills application. More men compared to women cited donor demands as an influence.

Leadership support

Quantitative results in Table 16 show a higher proportion of respondents (89%) felt they were encouraged by their leaders to integrate gender in agricultural research (66% men, 23% women) while only about 11% stated they were not encouraged by their leaders (8% men, 3% women). No significance difference existed between the two gender groups for this factor.

Peer support

Peer support at the work place plays a key role in influencing gender practices. About 64% of the respondents felt there was generally lack of peer support in the organization (50% men; 14% women). Only about 36% mentioned the availability of peer support (25% men, 11% women). A large proportion of the respondents (66% of these, 52% were men and 14% women) felt colleagues in their own discipline didn't encourage them to use the gender knowledge and skills (see Table 16). No significance difference existed between the two gender groups for this factor.

Supervisor support

About 71% of the respondents mentioned that their direct supervisors encouraged them to apply gender skills (59% men, 12% women). A significance difference exists between men and women scientists in their perception of supervisor encouragement. Only 30% (16% men, 14% women) felt they had no supervisor encouragement. Contrary, only 48% of the respondents (40% were men and 9% were women) had received guidance from their supervisors on how to apply the knowledge and skills whenever they had challenges. Majority of respondents (52% of which 36% were men and 16% women) mentioned that the supervisors did not guide them on how to apply the knowledge and skills whenever they got challenges.

The study also focused on understanding whether supervisors valued the application of gender skills; set goals for to encourage staff apply gender training on the job and reward mechanisms as steps towards encouraging gender skills on the job (Table 16). Direct Supervisors were found to value the application of gender skills as mentioned by 75% of

the respondents (60% men, 15% women). Only 25% felt their supervisors did not value the application of gender skills (15% men, 10% women). The test of association found a significant relationship between the sex of the respondent and the statement that "my supervisor/unit leader/project leader values the application of gender skills" (p=0.042).

Table 13 Factors affecting the application of gender responsive research skills

	True		False		Means and level of significance between means of men and women respondents (ANOVA test)			
	Men %	Women %	Men %	Women %	Overall	Men	Women	Level of Significance
Donor demand								
Donors demand for integration of gender to win grants (n=124)	67.7	18.5	7.3	6.5	0.86	0.9	0.74	0.024
Leader support								
Leaders in this organization encourage the integration of gender in agricultural research (n= 123)	65.9	22.8	8.1	3.3	0.89	0.89	0.88	ns
Peer support								
Colleagues in my organization/ research project encourage me to use gender knowledge and skills (n=126)	50.0	14.3	24.6	11.1	0.64	0.67	0.56	ns
Colleagues in my discipline encourage me to use the gender knowledge and skills (n=123)	52.0	13.8	23.6	10.6	0.66	0.69	0.57	ns
Supervisor support								
My supervisor/unit leader encourages me to apply gender knowledge and skills (n=126)	58.7	11.9	15.9	13.5	0.71	0.79	0.47	0.001
My supervisor/unit leader/project leader guides me on how to apply the knowledge and skills whenever I get challenges (n=124)	39.5	8.9	35.5	16.1	0.48	0.53	0.35	n
My supervisor/unit leader/ values the application of gender skills (n=124)	59.7	15.3	15.3	9.7	0.75	0.80	0.61	0.042
My supervisor/unit leader/project leader sets goals for me which encourage me to apply my gender training on the job (n=119)	26.1	8.4	50.4	15.1	0.34	0.34	0.36	ns
My supervisor/unit leader rewards me when I integrate gender in my research work(n=123)	20.3	1.6	55.3	22.8	0.22	0.27	0.07	0.020
Personal interest								
I want my research work to impact men and women (n=129)	71.3	26.4	2.3	0.0	0.98	0.97	1.00	ns
I am passionate about improving the well being of Women in total (n=128)	67.2	25.8	6.3	0.8	0.93	0.91	0.97	ns
I want to contribute to social change through gender equality in total (n=128)	68.0	25.0	5.5	1.6	0.93	0.93	0.94	ns
Opportunity to use gender skills								
I work (or have worked) on a funded project which has a gender component in total (n=122)	45.9	13.1	29.5	11.5	0.59	0.61	0.53	ns
I have acquired relevant gender skills that encourage me to integrate gender in my research in total (n=123)	42.3	13.0	31.7	13.0	0.55	0.57	0.50	ns

Personal interest

Individual interest influences researchers in applying gender skills for research at the work place. The majority of the respondents (93% with 67% men, 25% women) indicated that they applied the gender skills because they are interested in their research impacting both men and women. Ninety-three (93%)(68% men, 25% women) indicated to being passionate about improving the welfare of women. A similarly high proportion (93%) had a desire that their work leads to social change.

Similar views were reflected by the qualitative findings indicating that some researchers understood the relevancy of gender in research and attempted to integrate gender in their research activities as explained below;

> During my undergraduate studies, I understood the pertinence of gender. On reflection, I understood that development cannot take place through agriculture without gender inclusion. In 2002, I attended Women's Worlds Conference at Makerere where I presented a paper and listened to other presenters and this inspired me to consider gender seriously (Men, Gender Focal Person).
>
> Individual staff interest has given gender mainstreaming a firm grip in our institutes and several champions exist…(NARO Director).

Opportunity to apply gender skills

Applying skills back to work hinges on whether there are opportunities to do so. Table 16 shows that opportunity to apply the knowledge was acknowledged as a driver of application of gender skills by 59% (46% men, 13% women) by those who worked on funded projects that required a gender component. Fifty five percent (55%) with 42% men, 13% women, indicated that the acquisition of relevant gender skills encouraged them to apply.

We present below two cases of scientists who had received gender training. Case 1 is a senior scientist who attended gender training which totally transformed her values and research approach. The narrative shows that key drivers included availability of opportunities to apply gender knowledge and skills, acquired personal passion and self-drive, role models from within her discipline and participation in international women's networks. Experiences are revealed in case 1.

Case 1 Conducting gender responsive research with beneficiaries at heart: An experience of a female researcher that depicts individual motivation and use of acquired skills

I gained interest in gender after interacting with gender and agriculture experts in Kenya. When I visited Kenya, one expert told me that unless you know the details of the groups, you will not contribute to solving their problems. At that time I had not yet understood the importance of integrating gender in our scientific research. After this, I gained the interest and got trained in gender and started to work with gender in agriculture. I also worked with PhD students of gender who changed my outlook of scientific research. I started looking at research with beneficiaries in mind especially those who are disadvantaged such as women. After the training in Mombasa about mainstreaming gender in agriculture in 2007 I came back with determination to do something to change the situation of Women through my research. I also interacted with Women from different parts of the world. We shared experiences, opportunities and challenges. All these contributed to my inquiry and search for solutions through research. These interactions also taught me how to mentor other researchers for continuity purposes. For example one of my research products is the forage chopper, which reduced the risks of cutting oneself. Women initially used pangas to cut forage but this technology proved to be fast and lifesaving. During the process, we kept on analyzing and reanalyzing to ensure that the technology catered for all the different categories of beneficiaries both men and Women, small and big bodied, people with disabilities etc. So, one technology had to consider all these aspect for it to be gender responsive. In my research, I purposed to

contribute to changing the lives of grassroots women and men –the technology should be used by people who will benefit and transform their lives- for example a technology that changes people's lives from sleeping in grass thatched houses to iron sheet roofed houses. That to me is the most effective technology. I have integrated gender in research because it is a must do, there is no excuse and for all projects funded by the World Bank, it is mandatory. Many donors these days are very strict and so not compromise on gender integration in projects. It is a requirement from the proposal to the dissemination.

I have also integrated gender in the recent project entitled "Improving feed availability to small holder farmers in Northern Uganda. The target group is the heifer project beneficiaries. In this project we realized that the major challenge was that the beneficiaries of the project did not have feeds and these were 330 women plus 5 men. In real life, if you develop any technology, it should be targeting a group of people who are not homogeneous. This means developing the technologies with the beneficiaries at heart. The developed technology should not burden people but should relieve them of some burden. The technology should help beneficiaries improve their lives and come better than before the technology came in. Unless gender is integrated in the thinking and implementation or development of this technology your success as a researcher will not be counted. So integrating gender is what I said earlier that you do research with the beneficiaries at heart. You ask yourself from the planning, through to the implementation level until the end of the production - research that caters for the needs of different categories who have different needs and demands but which have to be addressed by a research product.

Other than my personal interest, NARO as an institution has been supportive of gender responsive research by availing institutional funds; the donors are also keen and support gender trainings and other activities; my research team members especially these regional projects are also supportive. They show appreciation and that motivates me to push on. As an individual, I have an obligation to give back to the community through my research. One of the motivating factors for me is that I always want to develop others. The beneficiaries have been so helpful – the farmers I interact with are enthusiastic and want the relation to continue. For example on time when I got an accident, the farmers heard and mobilized themselves and came to see me in hospital. My family is also key in my journey-they keep me moving and support me in various ways.

In terms of challenges, sometimes the funds are not enough; some people may not be gender responsive especially when the women beneficiaries get incomes that becomes a source of conflicts at home - some men forcefully get their wives incomes/money from these technologies and so some scientists

Case 2 below indicates the contrary. The senior scientist in the case who served as a gender focal person/contact person has attended over 10 gender trainings in and outside Uganda but was not applying this knowledge. His case reveals his own limitation to application and wider organizational factors that seem to affect gender integration into research generally.

Case 2 "I have been trained so many times that I have lost count of the numbers"… Trained in gender but not applying the gender knowledge and skills acquired

Training attended: I have been trained so many times that I have lost count of the numbers. These were eye opening but not so much to cause a transformative change. I learnt that gender is very important because development cannot be achieved without considering gender. In Agriculture gender is very important because the involvement of men and women requires consideration of individuals as different and with different contributions. I also know that development partners/donors insist on gender integration, so to ask me whether gender is important in agriculture is like asking the Reverend the importance of baptism or getting saved.

Experience with projects: I have participated in so many research projects that I have forgotten some of them. However, although I have capacity to do gender analysis, gender responsive research, participatory research, community mapping I am not applying these skills according to my ability. Maybe I can say that I am applying in passing e.g. when we are doing a social survey or participatory research, when we meet people we map them according to gender. We lost an opportunity to integrate gender in one of our project on Orange sweet potatoes that was implemented by Serere and Kachwekano. Because we did not

do a gender analysis and we landed into unnecessary limitations for example women thought that the orange sweet potatoes targeted their sexuality as a contraceptive. These misconceptions could have been avoided if a gender analysis was conducted. As scientists, our background is not gender and sometimes we do not understand the importance of it very fast. Introduction of new commodities without prior gender analysis has made it difficult to understand how gender should be integrated- after backfiring then we go back to say that it is because gender analysis was by- passed. We are currently implementing another project on apple growing in Kabale. Again we did not do a good gender analysis and after hitting a snag, we went back to do it but it was too late. We are struggling because we missed the opportunity.

Reasons for not applying: I am not applying gender in my research activities because there are no specific projects where I would apply gender. There are several constraints that can be understood at different levels. At the Institutional level, there are budgetary constraints and the assumption that NARO is gender responsive in its research work. This has led to talking a lot about gender and doing too little in terms of implementation. At NARO, the gender programme was introduced recently but is managed at MUZARDI and there are no units that would implement this programme. Where I am, there is no gender focal person but just a contact person with no structures or budgetary votes. When there is limited funding as usually is, gender is the first to fall of the radar. Therefore integration of gender in most cases remains cosmetic where scientists, directors, and other institute staff assume that we know what and how to 'put gender there' and in most cases it does not work. Administrators' lack of gender skills and knowledge: Most Directors and Human Resource Officers have never been trained in gender skills and lack the gender knowledge. Some directors actually think that gender is a waste of time. As policy makers, it becomes very difficult to appreciate, consider and support gender mainstreaming in our institutions. They are not sensitive to gender issues and you find that (for us who have been trained) we are not dancing the same tune. At the individual level, constraints include; one person project- when there is a focal person in an institute with no team/staff, you cannot do gender integration alone. Many people are not trained in gender skills but expected to do it any away/apply gender – how do you give what you do not have? Also there are big plans for integrating gender but end as big talks- donor driven that end up on paper and not translated into practice.

Way forward: Following up the training not with the demand to integrate but to assess capacity and appreciate the discipline before integrating gender. Continuous sensitization of scientists and all categories of staff about the importance of gender in research and capacity building or training should not be a one off but a continuous process because staff come and go; creation and recognition of gender office or unit because having just a gender focal person with no facilitation and relevant structures does not help and funding gen der should be prioritized if we are to walk the talk and have gender responsive researches and products.

Existing institutional incentives and rewards

Rewards and incentives were found to limit gender integration in research. These rewards and incentives may include higher rating for staff that conduct gender responsive research during appraisal exercises; opportunities to be included on the research projects; support to further training and financial support for gender activities. Table 17 shows that 82% of the respondents (63% men, 19% women) felt they had no support from their organisations while only about 19% (17% men; 2% women) felt they were supported. In terms of rewards, about 80% of the respondents felt these were not in place (57% men, 23% women) while only 20% mentioned having the incentives in place to conduct gender responsive research (18% men, 3% women). On higher staff rating as an incentive, 69% of the respondents (48% men; 22% women) said it was not a common practice while only 31% mentioned that this was done (27% men, 4% women). The test of association found a significant relationship between the sex of the respondent and the statement that *"my organization rewards employees who do gender responsive research through higher performance rating"*, p=0.037. A higher percentage of respondents (69%) of which 48% were men and 22% women felt inclusion on research projects was not a practiced while about 31% (27% men,4% women) felt it was done. Support for further training was also largely rejected as an existing incentive indicated by 53% of the respondents (37% men, 16% were women) compared to 47% (37% men, 11% women) that supported this.

Table 14 Institutional incentives for integrating gender in research

I integrate gender in my research because…..	True		False		Means and level of significance between means of men and women respondents (ANOVA test)			
	Men %	Women %	Men %	Women %	Overall	Men	Women	Level of Significance
Institutional support of total (n=97)	16.5	2.1	62.9	18.6	0.19	0.21	0.10	Ns
My organization rewards employees who do gender responsive research through:								
- Promotion of total (n=113)	17.7	2.7	56.6	23.0	0.2	0.24	0.10	Ns
- Higher performance rating of total (n=107)	27.1	3.7	47.7	21.5	0.31	0.36	0.15	0.037
- Opportunity to be included on research projects of total (n=109)	39.4	11.0	33.0	16.5	0.50	0.54	0.40	Ns
- Opportunity to be supported for further training of total (n=114)	36.8	10.5	36.8	15.8	0.47	0.50	0.40	Ns

4. Gender Responsive Research in Rwanda Agriculture Board (RAB): Institutional Assessment and Researcher Capacity

This section answers the two research questions with respect to Rwanda: 1) what are the policy and practice drivers/motivators and barriers/inhibitors for gender responsive research in Rwanda's national agricultural research organization RAB? 2) What are the structural, cultural and other drivers/motivators and barriers/inhibitors for gender responsive research in RAB? Informed by the same theoretical framework (see section 3.1), we carried out an institutional analysis of RAB. Drawing on triangulated evidence from available institutional documents, experiences of middle management, gender focal persons, principle instigators of research projects and individual scientists; existing gender practices are interrogated, and drivers and barriers to gender responsiveness identified. In depth statistical analysis was not carried out for the Rwanda data set as for Uganda due to the very small sample size (n=37). This makes within group – men or women comparisons and mergers challenging, un-necessary at times and difficult to make inferences with. We thus use the basic statistical comparisons here.

4.1 Institutional Analysis

4.1.1 Gender responsive practices

Existing policies, strategies and structures

Rwanda has a National Gender Policy (NGP) that guides the integration of gender in the various sectors and policies in the country with the goal of social-economic transformation (Ministry of Gender and Family Promotion, 2010). The NGP requires all sectors to integrate gender in planning and implementation of development programmes in order to promote gender equality. Like all other national policies, the NGP has been translated into the local language (*Kinyarwanda*) to make it easier for all Rwandese to understand and apply the policy. The agricultural sector where RAB falls is therefore expected to comply with the NGP. Consequently, Rwanda has the Agriculture Gender Strategy (2010) aimed at guiding the Ministry of Agriculture and Animal Resources (MINAGRI), its agencies and development partners with respect to gender responsiveness of their programming and interventions (Ministry of Agriculture and Animal Resources, 2010). The document provides a lens for guiding the transformation of the agriculture sector by promoting equal opportunities between men and women, boys and girls in the sector. The Strategy also informs agricultural development interventions in Rwanda in line with the Strategic Plan for Agricultural Transformation in Rwanda – Phase II (PSTA II). The PSTA aims at increasing the incomes of the rural population through improved agricultural productivity and facilitating transformation from a subsistence economy to production for both domestic and export markets (Agriculture Gender Policy, 2010). The Rwanda Agriculture Board Strategic Plan (2013-2018) has the goal of achieving food security, improved livelihoods and nutrition for the Rwandese population. One of the principle objectives is to: empower and promote proactive participation of all gender categories in agricultural development. The existence of such gender policies, strategies and plans provides a conducive environment to conduct gender responsive research.

The Gender Focal Person structures

Gender mainstreaming within RAB was spearheaded by gender focal persons. The structure was comprised of the national and regional Gender Focal Persons. There was one gender focal person at the headquarters who provided

oversight and coordination of the regional focal persons. Each of the four regions was supposed to have a gender focal person; although at the time of the study only 2 positions were filled.

The history of gender in RAB as well as the GFPs structure was an intervention of the Association for Strengthening Research in East and Central Africa (ASARECA). ASARECA requested RAB to appoint a national Gender Focal Person to oversee integration of gender in its funded projects. The National GFP was formally appointed by the Director General of RAB to undertake the gender responsibilities on top of his other responsibilities as a socio-economist researcher and head of Innovations Platforms. However, the regional level gender focal persons were informally appointed by the national GFP based on their interest in gender. They were subjected to basic gender questions to ascertain their levels of gender sensitivity.

Selection of Gender Focal Persons at RAB: An account of the national GFP

I had selection criteria. First, they had to be gender sensitive. When I was appointed, I conducted a big 2 day meeting where I introduced the gender issues. During the meeting, I saw the people with sensitivity and non-sensitivity. For gender sensitive, there were some questions which I paused to people in the gender workshop such as: 'can you do this work if you were a man or woman'? For men, the question was about cooking. Men in Rwanda don't cook. I asked if they could help their wives to cook. 90% said no. They were not gender sensitive because they subscribed to the rigid traditional gender roles. Second, I considered inclusiveness—I wanted a crop scientist, livestock scientist, social scientist, agribusiness scientist. I wanted a balance. We never gave them a formal

The main role of the national GFP was to *"closely collaborate with the Gender unit at ASARECA to ensure effective implementation of gender mainstreaming programmes in Rwanda"* (extracted from the Appointment Letter of the national Gender Focal Person). To execute this mandate, the focal person identifies and coordinates the gender activities of RAB. He also guides other regional focal persons to ensure that researchers are gender responsive. He reports on gender annually both to the RAB Director of Research and ASARECA. While the GFP structure was mentioned to be in place, a number of challenges were identified. The structure had not been fully integrated into the functioning of RAB which could explain why some researchers and leaders at the regional level were not aware of its existence. Despite the fact that the GFP had been appointed about 3 years back on 24th March 2013, a director and coordinator of research in one of the regions made the stated that: *"at RAB Headquarters, I don't think there is someone who is in charge of gender"* while a researcher at RAB also commented *that "I have just known today that we have a gender focal person at the zone"*

Results from the questionnaire survey revealed 35% of the researchers said there was no gender expert in their work place (35%), while 30% indicated that they were not sure a gender expert existed at their work (Table18). This could either imply that the GFP were not considered gender experts by fellow researchers, or that the GFPs were not actively and visibly performing their roles. This finding collaborates with the qualitative ones confirming the limited awareness about the GFP structure within RAB.

Table 15 Whether one has a gender expert in their work place (n=37)

		Gender of the respondent					
		Men		Women		Total	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Whether one has a gender expert in their work place	Yes	7	18.9	6	16.2	13	35.1
	No	7	18.9	6	16.2	13	35.1
	Not sure	8	21.6	3	8.1	11	29.7

The nature of the gender focal person structure

The gender structure at the regional level is largely informal since the GFPs have no formal appointment letters. The regional GFPs have no gender workplans; they support projects only when invited by principal investigators and this was often adhoc and with very low budgets. The regional GFPs were not required to report on gender; and therefore the national GFP found it a challenge getting regional staff to contribute to the annual national gender report. The GFP indicated to being overloaded with work related with gender, which negatively affected his productivity. Gender is an add-on to his other responsibilities as a Social economic researcher which include conducting baselines surveys, adoption studies, impact studies, and coordinating innovation platforms for all projects in the southern region.

The challenge of inadequate funding for gender structures was frequently mentioned at both national and regional levels (Table 19). There was no evidence of accountability systems for gender in research from the institutional processes and structures of RAB. The GFPs did their gender work out of personal interest. In relation to this, a female gender focal person narrated that: "*I work in small activities. I train farmers in watershed. I am interested in gender. I do activities which do not require a lot of funds. People know that I am interested in gender*".

Table 16 Voices on the challenges affecting the operationalization of Gender Focal Person structure

Challenges	Data source			
	National GFPs	Regional GFPs	Middle management (Zonal level)	Scientists
No established position and ToRs for the GFP at regional level, GFPs at that level not formally appointed	✓	✓		
No systematic plan/strategy and operational guidelines; gender activities are often adhoc, not consistent	✓	✓		
Lack of clear budgets to address gender issues and activities	✓	✓		
Even scientists who win grants which are supposed to be gender responsive end up not implementing the gender ideas and activities. GFPs are left out of such project activities.		✓		
The regional gender focal persons were not trained adequately. They just attended a few short courses. Capacity in gender in the organization is inadequate	✓			
GFPs have other responsibilities; gender is an additional responsibility	✓	✓		
At the national level there is one GFP; his scope of work is too wide undermining efficiency	✓			
Gender is trivialized by researchers and top management—as evidenced from jokes and statements about it	✓	✓		
No institutional rewards to GFP work and for gender integration.	✓	✓		
No accountability systems for GFPs	✓		✓	
Researchers and middle management not aware of the existence of the GFPs			✓	✓

Source: Fieldwork findings, 2016

4.1.2 Institutional Gender responsiveness: Drivers and constraints

The previous section has described the existing gender practices within RAB. Although there was a clear objective of promoting women's participation in development shaped by the Rwanda's national policy direction, gender responsive research was not understood and institutionalized in RAB. Gender structures were informal with low visibility and status; gender trainings were few, adhoc, externally funded and not institutionally initiated. As such gender responsiveness research was yet to be fully streamlined and systematically applied to the research process. This section focuses on drivers and constraints of gender responsive research within RAB. The main drivers include ASARECA and other donors, together with individual champions motivated by personal interest. Gender responsiveness was constrained by absence of support from top and middle management, peer support mechanisms, institutional rewards and incentives as well as accountability systems to promote gender responsive research.

ASARECA influence

ASARECA as a regional association of the NARS coordinated the development of a gender policy to guide the operations of the NARs in member countries including RAB. ASARECA is credited for spearheading the recruitment of the national Gender focal person, supporting gender training for the GFPs and scientists including the transformational Participatory Research and Gender Analysis (PRGA) course (2004-2006), and funding of various gender research projects implemented by the GFP and other scientists. The quote below illustrates the central role of ASARECA in RAB's gender integration efforts:

> All projects funded by ASARECA make gender a requirement. If ASARECA hadn't been here, there wouldn't have been much gender responsive research. Before ASARECA intervention, people were thinking of gender as 30% of women in political offices but not in terms of developing technologies that reduce drudgery of women. Women do most of the agricultural work but are hampered by many gender issues (Female, Gender Focal Person, RAB)

Donor influence

RAB was implementing many donor-funded projects at the time of the study and depending on the donor, a number of these had gender integration as a requirement. An example was the integrated systems for humid tropics project which had provisions for participation of a GFP and for conducting gender training for researchers.

The individual survey revealed that about 56% of the respondents applied gender skills learnt in training because of an opportunity presented by working on a funded project with a gender component, while about 67% applied gender because they had got an opportunity to be trained. About 82% attributed their application of gender to the fact that donors demanded for integration of gender to win grants (Table 20).

Table 17 Opportunities to apply gender skills provided by donors

	True			False		
	Men %	Women %	Total	Men %	Women %	Total %
Opportunity to use gender skills						
I work (or have worked) on a funded project which has a gender component in total (n=18)	27.8	27.8	55.6	16.7	27.8	44.4
I have acquired relevant gender skills that encourage me to integrate gender in my research in total (n=18)	33.3	33.3	66.7	11.1	22.2	33.3
Donors demand for integration of gender to win grants (n=17)	41.2	41.2	82.4	0.0	17.6	17.6

The influence of gender champions

From the qualitative interviews, informants mentioned the significant role of gender champions right from the President of Rwanda whom they perceived to be championing gender responsiveness in service provision. However, internally within RAB, only two gender champions were identified; the national GFP and one woman in top management. The latter of the champions was mainly associated with advocating and encouraging women's career growth and progression and not gender responsive research per se. RAB therefore seemed not to have a critical mass of champions that could drive genuine institutional gender transformation. In addition, the mis-conception amongst the champions that gender means advocating for equal representation of women in positions (see quotes under the theme "Leaders champion for gender" in Table 21) undermine genuine gender responsiveness.

Table 18 Participant views on leadership support for gender integration

Leadership support for gender integration	M&E officer	GFP	Scientists
Supportive national institutional framework			
'Rwanda has a Gender Monitoring Office (GMO) that ensures that gender is mainstreamed in all sectors. We also have joint social protection meetings where we assess whether gender issues have been incorporated in reports and planned activities. Ignoring it calls for GMO to act by advising and sometimes requiring the staff to redo the activities (M&E, RAB)'.	✓		
'Internally, we keep reminding the staff of their responsibility because every institution has a Gender Focal Person who acts as a watchdog e.g in RAB we have Leonidas (M&E, RAB)'.	✓		
'Our leaders are accountable for gender integration following our internal regulations, national and international regulations and legal provisions that emphasize gender integration at all levels and by all staff'	✓		
'Our institutions emphasize gender integration especially in agriculture and all the staff have to play their roles well. So we follow legal frameworks and leaders are aware that they have to be accountable. When we come across opinions that require resolving some gender issues, we refer to the readily available documents. (M&E, RAB)'.	✓		
Leaders champion gender			
'At the top, the President talks about gender'	✓	✓	✓
'Gender is pushed right from the top leaders so even if people at the DG level don't have time to attend training, they take it seriously always saying—what are you doing about gender? Even without training they always have to report on gender'.		✓	
'The top management is supportive of gender and they are always pushing to see that more women participate though the numbers are still limited'	✓		✓
'Our leaders are supportive of gender equality. Our Director General who was a lady demonstrated that gender is key to RAB because agriculture and livestock are the backbone of Rwanda's economy. She has always supported the women to take bigger positions not only in RAB but also in other institutions e.g out of the 4 depts , one is headed by a woman (Men, PI, Kicukiro, RAB)'.			✓
There was a leadership training workshop where the Director General directed me in an email that "please be particular about gender			✓

4.2 Researcher Gender capacity and application

4.2.1 Gender perceptions

As part of capacity assessment for gender responsiveness, the study established the perceptions of the respondents towards gender using statements related to: the position of women and men in society; the existing gender division of labour; influence of development interventions on gender relations; relevancy of gender to research work; women's empowerment and its implication; the importance of integrating gender in agricultural research and science generally. On "the position of women and men in society is already determined by God and agricultural research interventions can't do anything to change it". Out of 37 respondents, the 22 who were men and 13 who were women disagreed with the statement. Only two women agreed with the statement.

The statement "the existing division of roles between men and women in society is okay", fourteen men and seven women disagreed with it, while five (5) men and eight (8) women agreed to it. The statement that "development interventions can't change the division of roles among men and women in society," had sixteen men and twelve women disagree with it. Only 5 men and 3 women agreed with it.

That "development interventions can't change power relations between men and women in society" was disagreed to by 16 men and 14 women and agreed to by 6 men and 1 woman. That "It is not good for development interventions to change the way society expects men and women to relate as it can lead to household conflicts", 16 men and 14 women disagreed with the statement while 5 men and 1 woman agreed.

Nineteen men and 14 women disagreed with the statement "I feel that gender is a western concept not suited to African culture.". Three (3) men agreed to it and 1 woman was not sure. On the relevancy of gender to research work, 16 men and 13 women agreed that gender is relevant to their research activities while 4 men and I woman saw gender as irrelevant and 2 men were not sure. Asked they agreed with the statement that "efforts to empower women undermine men's power in society." 19 men and 14 women indicated to disagree while 3 men agreed and only 1 woman was not sure.

The statement that "it is important to integrate gender in agricultural research" had twenty (21) men and 14 women agreed with it and one man and one woman disagreed with the statement. On "gender is a social science and is not relevant to agricultural science", 18 men and 14 women disagreed with this, while 3 men and 1 woman agreed with it.

Most of the perception statements were given with a negative connotation towards gender, most respondents however, disagreed with such statement, and agreed with the positively disposed statements. This shows that most of the respondents men or women in the sample viewed gender positively. There is a positive agreement with the need for gender equality and equity, however, it also questions whether these seemingly positive dispositions are observed in practice (See Case 3 below). Qualitative narratives and reactions observed by the team showed that some researchers still have misconceptions on gender equality that depicts the lack of understanding of gender, its appreciation and relevancy to research and development. As such they are not fully positively disposed towards gender. This explains their limited capacity to integrate gender in research. For instance, gender was understood as representation of men and women and as a women's issue. Respondents referred to the national gender policy that calls for 30% representation of women in political engagements. Some scientists therefore perceived the 30% to mean the ceiling for women's inclusion in programmes meaning that the importance of gender in research is not well understood to inform the research process. Below are some of the voices on researcher understanding of gender.

There are many women in RAB who have PhDs or have gone back to study. RAB is focusing on gender equality…

When people say gender, everyone thinks about women. In Rwanda's case, at the farm level it is women mainly doing agriculture. It is also them who take care of the children and the whole family. But in research, women are very few (Zonal Director, RAB).

Our Director General who was a lady demonstrated that gender is key to RAB because agriculture and livestock are the backbone of Rwanda's economy. She has always supported the women to take bigger positions not only in RAB but also in other institutions e.g out of the 4 departments; one is headed by a woman (Male PI, RAB).

In trainings we must have a minimum of 30% women and 70% men (Zonal Director, RAB)

As a policy, it is stipulated that women have to be represented. However, I do not know how I came to be appointed here (as a Coordinator of Research); whether it was because of this policy or not. They simply appointed two men and two women. They usually look for whoever is capable regardless of sex (Female Research Coordinator, RAB)

Some researchers also blamed women for their exclusion in the research process by noting that women are often not available to participate and are not interested in agricultural research as follows;

> Women are not interested in agricultural sciences. They associate agriculture with poverty. However, now that there are many NGOs in agriculture and jobs in agriculture, Women are increasingly getting involved (Zonal Director, RAB).
>
> In agricultural science, ladies do not find agriculture attractive. They are more interested in social science. They are not interested to do the hard work in the field (Zonal Director, RAB)

Findings also revealed negative attitudes and norms around gender that continue to affect gender integration in research. Some researchers did not take gender seriously but instead supported the traditional views on women and men and translated into research. Below is a case that demonstrates such beliefs where a male principal scientists perceived gender as talk about women, increasing women's numbers and the view that the family should be static (Case 3).

Case 3 Rwandese culture: An interface with a "custodian" of cultural beliefs

PI: Integrating gender in our research should be done with our culture at heart. There are tasks that should be left to men
Researcher: Like which ones?
PI: In my culture no woman is expected to milk a cow unless she is a widow or has some demons on her. I cannot take milk that is milked by a woman and even women themselves will not drink such milk. I believe that the traditional gender roles of men and women should stay.
Researcher: What if a family does not have boy children and they have cows?
PI: Even if you don't have boys, women and girls should not milk. Instead, boys in the neigbourhood should assist because that is a man's role A family where a woman milks a cow, people will think that there is a problem in that family-it is seen as a curse. You know, gender is a new concept which is less than 50years and we should not let it replace the good things in our culture.
Researcher: Where did it come from?
PI: It came from Europe. It has come to destroy our culture and we need to preserve what we value.
I appreciate the Kiganda culture where women kneel for men as a sign of respect. If you come back from the work place with all the stress and the woman kneels for you saying "*kulikayo sebo*", can you ever beat such a woman? Even all the stress will disappear and you feel great. We should not allow our sisters/mamas to step on us because men still need to keep their dominance

Researchers mentioned how gender is a difficult aspect to change because changing it contradicts culture, and noted that there is 'gender fatigue' because a lot has been said on gender which has made people tire before understanding it. Below is an example of such views;

> In our culture, it is still a process to completely change what we were socialized to believe bearing in mind that balancing gender sometimes contradicts our cultures. A lot of people talking about so much so that many people have heard about without necessarily appreciating or understanding it. There is gender fatigue but not much understanding – people are tired of hearing about gender before they understand it (Male PI, RAB).

Table 19 Researcher perceptions of gender by sex

	Agree (%)			**Disagree** (%)		
Perceptions on:	Men	Women	Total	Men	Women	Total
Whether the position of men and women is determined by God (n=37)	0.0	5.4	5.4	59.4	35.1	94.5
Whether respondent feels the existing gender division of roles btn men and women is ok (n=37)	13.5	21.6	35.1	45.9	18.9	64.8
Whether respondent feels development interventions can't change the division of roles in society (n=37)	13.5	8.11	21.6	45.9	32.4	78.3
Whether respondent feels development interventions can't change the existing power relations between men and women in society (n=37)	16.2	2.7	18.9	43.2	37.8	81
Whether respondent feels that gender is irrelevant to their work (n=37)	11.1	2.8	13.9	50	36.1	86.1
Whether respondent feels that it is important to address gender in agricultural research (n=37)	56.7	37.8	94.5	2.7	2.7	5.4
Whether respondent feels that gender is a social science and is not relevant to biophysical agricultural science disciplines (n=37)	8.1	2.7	10.8	51.3	37.8	89.1
I feel that gender is a western concept not suited to African culture (n=37)	2.7	0.0	2.7	18.9	10.8	29.7
Whether respondent feels that gender streamlining efforts will most likely lead to imbalances in power to the disadvantage of men and society (n=37)	8.1	0.0	8.1	32.4	18.9	51.3
It is not good for development interventions to change the way society expects men and women to relate as it can lead to household conflicts (n=37)	13.5	5.4	18.9	37.8	18.9	56.7

4.2.2 Gender competence of staff

Overall, RAB had not made adequate investment in developing the capacity of its staff to conduct gender responsive research. Seventy-eight (78%) percent of the researchers had never had a gender training (Table 23). However, in response to a self-rating assessment, about 56% of those that had attended training courses reported that they had applied the skills acquired (Table 24). The level of application did not vary by gender. Among the 4 men who had attended a gender course, one indicated to having applied what they had learnt 'to some extent', while 3 indicated that they had applied 'to a great extent'. Among the 5 women who had attended a gender course 2 indicated that they had applied what they had learnt 'to some extent', another 2 indicated that they had applied 'to a great extent', while 1 indicated that they had not applied anything at all from the gender course they attended (Table 23). However, probing of specific areas where they had applied gender revealed that a majority had never conducted gender responsive research that covered the entire research cycle. Table 25 shows that most of the respondents – both men and women, had never conducted a gender analysis, formulated gender specific goals and objectives, developed gender focused research proposal, collected and analysed sex disaggregated data. Between 65% and 80% said they had never done these critical aspects that integrate gender into research. There were more men than women saying 'no' to this than those who said 'yes'.

Table 20 Attendance of a short course on gender

		Gender of the respondent					
		Men		Women		Total	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Whether one attended a short course on gender	Yes	4	11.1	4	11.1	8	22.2
	No	18	50.0	10	27.8	28	77.8

Table 21 Level of application of what researchers learnt from gender short courses

		Gender of the respondent					
		Men		Women		Total	
		Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
Level of applying what they learnt from the short course on gender	Not at all	0	0	1	11.1	1	11.1
	To some extent	1	11.1	2	22.2	3	33.3
	To a great extent	3	33.3	2	22.2	5	55.6

Table 22 Application of gender to specific stages of the research cycle

	YES			NO		
	Women (%)	Men (%)	Total (%)	Women (%)	Men (%)	Total (%)
Conducting a gender analysis to capture gender needs/interests & constraints (n=35)	11.4	8.6	20.0	25.7	54.3	80.0
Formulating goals and objectives relevant to needs of women and men (n=35)	11.4	11.4	22.9	25.7	51.4	77.1
Developing a gender focused research proposal taking care of gender in the conceptualization, data collection and analysis and reporting plans (n=35)	11.4	17.1	28.6	25.7	45.7	71.4
Collection of sex disaggregated data (n=35)	14.3	14.3	28.6	48.6	22.9	71
Analysis of sex disaggregated data (n=35)	14.7	11.8	26.5	20.6	52.9	73.5
Writing a report or manuscript using sex disaggregated data (n=35)	14.7	17.6	32.4	23.5	44.1	67.6

4.2.3 Personal/individual interest: A key driver for application of gender skills in agricultural research

The scientists of the Rwanda Agriculture Board were found to be very limited in terms of gender appreciation, skills and application. However, there were efforts to integrate gender at the institutional and individual levels. The main factor that influenced researchers to apply gender skills acquired in training courses was personal interest. The survey revealed that staff who had applied gender in their research activities were inspired by individual/personal interest (Table 26). Ninety four percent (94%) indicated to have been driven by the desire to that their research impacts men and women; while 90% wanted to contribute to social change through gender equality. A total of 89% indicated the driver as a passion to improve the lives of women.

Mangheni and Karuhanga (2005) observed that in organizations without institutional incentives and rewards for gender responsiveness, intrinsic personal motivation and passion tends to be a key driver of gender responsive practice. Under such environments, individuals convinced about the importance of gender draw on their inner convictions which propel them to take action despite absence of external rewards and sanctions. This could explain why women in Rwanda had applied gender in more aspects of the research cycle than men, possibly due to women researchers to improve women's livelihoods

Table 23 Personal interest

	True			False		
	Men %	Women %	Total	Men %	Women %	Total
Personal interest						
I want my research work to impact men and women in total (n=18)	44.4	50.0	94.4	0.0	5.6	5.6
I am passionate about improving the wellbeing of women in total (n=18)	38.9	50.0	88.9	5.6	5.6	11.1
I want to contribute to social change through gender equality in total (n=19)	36.8	52.6	89.5	5.3	5.3	10.5

4.2.4 Other factors influencing the application of gender responsive research in RAB

Supervisor support

Supervisor support is a key factor that influences application of gender skills. Sixty seven percent (67%) of the respondents indicated that the leaders of their organizations encouraged them to integrate gender in agricultural research work (Table 27). Seventy nine percent (79%) of the respondents the majority of whom were men, agreed to the fact that institutional policy was supportive of integration of gender in research.

Supervisors of the respondents from Rwanda also played a role in encouraging the application of the gender knowledge and skills albeit more in some aspects than the other. The aspects were supervisors were rated to be doing more were in encouraging the scientists to apply their gender knowledge and skills (Table 28). Fifty percent (50%) of the respondents including slightly more women (28%) than men (22%) indicated to agree to the fact that supervisors encouraged them to use gender skills. However, another half felt they were not being encouraged by their supervisors. The proportion of respondents who indicated that their supervisors for example guided them to apply (39%), valued their application of gender skills (44%), set goals for gender application (44%), and rewarded

workers when they integrated gender in their research work (31%) was small compared to those who did not see their supervisors doing these things. This means that the majority of workers are not having direct supervisor support to encourage them use the gender skills in their research or other work. This was observed by both gender groups.

Table 24 Factors considered encouraging application of gendered skills by men and women respondents

	True			False		
	Men	Women	Total	Men	Women	Total
Leader support						
Leaders in this organization encourage the integration of gender in agricultural research (n=18)	33.3	33.3	66.7	11.1	22.2	33.3
The institutional policy supports the integration of gender in research (n=19)	42.1	36.8	78.9	0.0	21.1	21.1
Peer support						
Colleagues in my organization/research project encourage me to use gender knowledge and skills (n=17)	17.6	47.1	64.7	29.4	5.9	35.3
Colleagues in my discipline encourage me to use the gender knowledge and skills (n=17)	23.5	35.3	58.8	23.5	17.6	41.2

Table 25 Supervisor support by sex

Supervisor support	True (%)			False (%)		
	Men	Women	Total	Men	Women	Total
Supervisor support						
My supervisor/unit leader/project leader encourages me to apply gender knowledge and skills (n=18)	22.2	27.8	50.0	22.2	27.8	50.0
My supervisor/unit leader/project leader guides me on how to apply the knowledge and skills whenever I get challenges (n=18)	11.1	27.8	38.9	33.3	27.8	61.1
My supervisor/unit leader/project leader values the application of gender skills in total (n=18)	16.7	27.8	44.4	27.8	27.8	55.6
My supervisor/unit leader/project leader sets goals for me which encourage me to apply my gender training on the job in total (n=18)	11.1	33.3	44.4	33.3	22.2	55.5
My supervisor/unit leader/project leader rewards me when I integrate gender in my research work in total (n=16)	6.3	25.0	31.3	37.5	31.3	68.8

Peer support

Peer support at the work place plays a key role in influencing gender practices. Findings show that a majority of respondents (about 65%; 18% men and 47% women) reported support from colleagues within the organization; while 35% felt peer support was non existent. Fifty nine percent (59%) of the respondents, 24% men and 35% women, indicated that colleagues in their own disciplines encourage them to use the gender knowledge and skills (see Table 28).

Institutionalized rewards and incentives

Qualitative findings (Table 29) revealed the lack of institutional incentives to support gender responsive research. Despite policy and verbal pronouncements, implementation, monitoring and accountability systems are lacking.

Table 26 Participant views on incentives and rewards for gender integration

Incentives	M&E officer	Middle Management	Scientists
Lack of practical support			
There are no rewards except if you get a gendered proposal under competitive grants			✓
Emphasis on the need to mainstream gender in research but not closely monitored			✓
There is only a political will in concept but not in implementation processes		✓	✓
There are no direct efforts except for some training on gender mainstreaming.			✓
Accountability systems			
Our institutions emphasise gender integration and all the staff have to play their roles well.	✓		

The quantitative survey on factors that encourage researchers to integrate gender in their research corroborated the qualitative findings. A majority of the respondents (about 79%) felt that conducting gender responsive research does not earn researchers any promotion (29% men, 50% women) while only 21% (7% men, 14% women) felt otherwise (Table 30). Similarly, a majority (about 67%) felt that gender responsive research does not lead to higher staff performance rating; or opportunities for higher training (57%). However, conducting gender responsive research increases chances of being sought after to be part of project teams possibly due to donor requirements for gender integration. About 53% of the respondents (20% men and 33% women) felt that RAB rewards gender responsiveness with inclusion on research projects. This reward however seems not to be formalized.

Table 27 Institutional incentives for integrating gender in research

I integrate gender in my research because…..	**True**			**False**		
My organization rewards employees who do gender responsive research through:	Men (%)	Women (%)	**Total** (%)	Men (%)	Women (%)	**Total** (%)
- Promotion of total (n=14)	7.1	14.3	21.4	28.6	50.0	78.6
- Higher performance rating of total (n= 15)	0.0	33.3	33.3	33.3	33.3	66.7
- Opportunity to be included on research projects (n=15)	20.0	33.3	53.3	13.3	33.3	46.7
- Opportunity to be supported for further training (n=14)	14.3	28.6	42.9	21.4	35.7	57.1

While donors require that gender is integrated in research, Management at RAB has not taken this seriously and has not put in place mechanisms to implement gender integration. A female gender focal person (Southern Zone) stated that: *RAB has adopted gender but not formally. If the Director General of RAB had written an order saying every project must have gender, it would have added something onto what ASARECA said. But it is supporting informally through talking about it*

4.3 Gender Misconceptions: A key barrier to practice

While there was an atmosphere that depicted gender awareness amongst researchers and RAB Management, the understanding of gender remains problematic, eventually hindering good practice. Qualitative data demonstrates the

misunderstanding of gender amongst leaders at the regional level and researchers in a manner that limits their appreciation of its relevancy in research. Gender was largely understood as representation of women in field meetings, and positions of responsibility. Below are statements on this;

> RAB is focusing on gender equality. 10 years ago, many peers were not enthusiastic about gender. Today, most people are seeing integration of gender in programmes as the way to go-it has become the norm in Rwanda (Male, PI, Kicukiro, RAB).

> Sometimes gender has become like a song, everywhere in the meeting gender is talked about .It would be strange to find a meeting of men or women only in any organization. In Rwanda women are now stronger and in big positions and men are accommodating the trend. (Male, PI, Kicukiro, RAB).

5. Assessing the Gender Responsiveness of Agricultural Research: Analysis of selected projects

The study assessed the gender responsiveness of agricultural research projects in Uganda and Rwanda. This assessment was guided by the question "*what is the level of application of gender to biophysical and socio-economic agricultural research?"* Data were mainly collected through interviews with Principal Investigators (PIs) as leaders of research projects at the time of data collection. The interviews generated qualitative data to provide a comprehensive understanding of the level of gender application by Principal Investigators (PIs) throughout the research process. Project documents particularly proposals and publications were also reviewed to assess researchers' gender responsiveness. A theoretical framework was developed to guide the analysis. The section presents the theoretical framework followed by the findings.

5.1 Monitoring and Evaluating Gender Responsive Agricultural Research: A Theoretical framework

We define gender responsive research (GRR) as research that considers gender needs/interests, priorities, opportunities, constraints and ensures that both women and men participate in, and benefit from the research processes on equal terms and are addressed as both the clients (or beneficiaries) and actors (or agents) in agricultural research (Meizen-Dick et al, 2011; Bill and Melinda Gates Foundation, 2008). Studies show that treating women and men as clients would require that the agricultural research agenda takes into consideration the needs, aspirations, knowledge, opportunities, constraints and challenges faced by men and women farmers of various age groups (Njenga and Gurung, 2011; Meizen-Dick et al, 2011). Gender responsive agricultural researchers need to be aware of the various gender biases, beliefs, norms, stereotypes and practices that affect agricultural processes especially in the context of land resources, gender division of labour, adoption and use of technology, access to agricultural information and extension services, decision making, marketing, ownership of agricultural produce and income. Gender inequities therefore affect agricultural processes while gender blind agricultural processes perpetuate gender inequalities. For gender responsive agricultural research to be achieved, researchers need to integrate gender in conceptualization, design, implementation and reporting phases with specific consideration for gender needs, division of labour/roles, priorities and entitlements to promote equitable and transformative research outcomes.

While many research organizations and researchers claim to integrate gender in their research, there is no consensus as to what constitutes gender responsive agricultural research. Clarity on observable and measurable characteristics of gender responsive research would enable funders, researchers and other development practitioners to make an objective judgement as to whether what is purported to be gender responsive research is actually so. This section presents a conceptual framework that elaborates measurable characteristics of gender responsive research as well as a tool for monitoring and evaluating gender responsiveness.

5.1.1 Key Dimensions for Monitoring and Evaluating Gender Responsive Agricultural Research

Monitoring and evaluating gender responsiveness of agricultural researches requires an analysis of how researchers' integrated gender in conceptualization, design, implementation and reporting phases with specific consideration for gender needs, division of labour/roles, priorities and entitlements to promote equitable and transformative research

outcomes. The questions should be asked on gender inclusiveness at the planning stage and priority setting, research process and products, institutional capacity to integrate gender and use of gender sensitive monitoring and evaluation indicators (World Bank, 2012a).

Planning and priority setting

During the planning stage, a gender analysis is necessary to provide information about men and women beneficiaries' needs, priorities, opportunities, constraints and benefits to inform the research process. According to Meizen-Dick et al (2011), there is need to ascertain women's interests, choices and use of particular crops or technologies including trait preferences, cropping calendars and seasonal workloads, possible individual opportunities and benefits of the research products, challenges for men and women to use a given research product and local knowledge on the use and management of resources.

Research institutions should have a clear research agenda that is committed to integrating gender in research activities. The process of setting the agenda should be done in a gender inclusive and consultative manner to take into consideration the different realities of men and women and how these inform the research agenda. It is also important to set clear gender sensitive goals, objectives, outcomes and activities if agricultural research is to be gender responsive (Njenga and Gurung, 2011; IDRC ,n.d). According to IDRC (n.d), having gender responsive goals and objectives may not be enough if they are not followed with activities on how to achieve them. Regarding the research agenda, gender responsiveness requires that researchers adopt a broader view of agriculture and food systems by recognizing women's role throughout the value chain for both food and nonfood crops and for both marketed and non marketed commodities (Meizen-Dick et al, 2011).

Gender-responsive research should not only consider increased yields as its main objective but should also include aspects that matter to women farmers such as improving food taste, quality, nutrition (Meizen-Dick et al, 2011; World Bank, FAO, and IFAD 2009) and ease to process into traditional dishes and recipes. In addition, there should be a clear research protocol that integrates gender across all elements of a research proposal from conceptualization to problem identification, methodology and budgeting to ensure gender equitable research products.

The research process

A gender responsive research process should pay attention to gender in constituting research teams, selection of topics, framing the research questions, hypotheses, and study variables, as well as the data collection procedures, analysis and communication of research findings.

Researchers

The participation of men and women in the research process is important. Research should make efforts to involve women scientists especially if they have local knowledge or where they are best suited to access women participants; community members due to the socio-cultural complexities (Meizen-Dick, 2011; Elias, 2013).For instance, some communities in Ethiopia and Northern Nigeria restrict interactions between men researchers and women farmers. Involving women as participants is likely to influence the research agenda and provide gender specific knowledge that informs the research outcomes such as research geared towards agricultural innovations (Meizen-Dick et al, 2011). It is important that researchers (both men and women) are equipped with adequate skills to conduct gender responsive research. Where research involves participation of communities/beneficiaries, both men and women beneficiaries should be equitably involved.

Research focus

Formulation of research questions, hypotheses, and variables for testing should embed the principle of sex disaggregation informed by the gender dimensions identified from the literature review and contextual analysis. For example, data should be collected on variables such as crops and animals raised by men or women farmers, incidence of women household headship, differences in poverty rates between men- and women headed households, landownership by men and women, and differential rates of malnutrition between men and women and how they utilise particular crops. Other important variables include trait preferences, cropping calendars and seasonal workloads for men and women, market opportunities, risks and risk tolerances, and how men and women use tools, inputs and technologies, access to and use of information and local knowledge of resources by gender (Meizen-Dick et al, 2011; Elias, 2013).

Methodology

During the data collection process, informed consent should be sought from men and women participants and research activities should be conveniently scheduled to allow both men and women to participate (Elias, 2013; Njenga and Gurung, 2011). While scheduling the time and venue for research activities, researchers should consider women's heavy workloads; restricted mobility; literacy levels as well as the need for privacy. Where men and women act as respondents, gender sensitivity requires that the data collection process recognizes possible gender based hindrances to true expression (Elias, 2013). In settings where women are likely not to be open in mixed sex settings, separate men and Women interviews should be conducted. Data should be analysed by gender and the responses verified by men and women participants. The implementation of agricultural research should be gender responsive throughout the process of literature review, research design and conceptualization, data collection, analysis, reporting and feedback.

Research products

The research products may include publications, paper presentations, technologies, and technical reports. These should provide gender disaggregated data to understand men and women contributions to the research product. A gender responsive research should produce products that will equally benefit both men and women such as the ability of both men and women to adapt a new technology, a publication or report that contributes to a gender sensitive policy or bye-law or a research output that reduces inequalities such as women's work burdens and poverty.

Institutional capacity

Institutions have been described as the 'rules of the game' of the society (Leković, 2011; North, 1990) such as a set of rules, compliance procedures and moral and ethical behavioural norms (Hodgson, 2006; Knight 1992; North, 1990). Institutions are governing structures that constitute a framework made up of norms, rules and enforcement mechanisms. They bring order to social relations, reduce flexibility and variability of behavior and, limit the possibility of unilateral exercise of personal interests and impulses to create a stable structure of human interaction (Leković, 2011).By providing the proper conduct of individuals, institutions increase the degree of predictability and ensure continuity of social relations. Examples of such institutions are markets, (Leković, 2011).Institutions can either be formal or informal. The former may include schools, labor markets, specific organizational structures such as companies as well as legislative and regulatory bodies (e.g. ministries) while the latter includes religion, culture, marriage, family, caste that determine the quality and sustainability of formal institutions (Casson, 2010). The key role

of institutions lies in the need to create the preconditions for the establishment of, by reducing the level of uncertainty in the society (Leković, 2011).

Research institutions should put in place the relevant regulations and strategies to enforce gender responsive research. These may include policies, strategy documents such as personnel recruitment and management systems that promote gender responsiveness. Research organizations should have critical mass of staff with the requisite knowledge attitudes and skills to formulate and implement gender responsive projects. Both Management staff and individual researchers should acknowledge the relevance of integrating gender in agricultural research and ensure that gender training for staff is continuously conducted as well as creating a conducive environment to conduct gender responsive research (Recke and Ngugi, 2005; Meizen-Dick et al, 2011).According to IDRC (n.d), integrating gender in agricultural research calls for strong leadership and commitment to gender by research organization and project managers. To conduct gender responsive research, agricultural researchers should be equipped with relevant gender knowledge and skills and should be supported by their institutions to attend gender courses within and outside their institutions. In addition, research institutions need to provide a conducive environment for post-training on the job application of gender skills. This implies that the institutions should have gender responsive budgets to avail the necessary resources for capacity building and research activities coupled with organizational culture and a reward system that incentivizes gender responsiveness.

Research indicates that political will, technical capacity, accountability and organizational culture significantly contribute to institution's capacity to conduct gender responsive research (James-Sebro 2005). Political will refers to an institution's ability to support the integration of gender, in policies and budgeting while technical capacity is having the appropriate professional qualifications and skills of staff to integrate gender into their work. Accountability means the mechanisms in place to enforce translation of policies into actions regarding commitment to gender integration. These may include monitoring and evaluation of research results and provision of staff incentives and sanctions. Lastly, the organizational culture would require creating a conducive environment supportive of gender integration where employees are encouraged to share lessons learned on gender and ask questions about its relevance to their work (ibid).

Monitoring and Evaluation

Monitoring and evaluation can be done at different levels for instance at the implementation to determine whether researchers integrate gender into their work and afterwards to measure the impacts of research products on men and women. This can be done by the use of both quantitative and qualitative indicators such as how many staff members integrated gender into their work and how it was done. Meizen-Dick et al (2011) have noted that evaluation, adoption, and impact assessment studies often focus on household-level indicators and collect data from men household heads using standardised and predetermined indicators that exclude women's voices. Gender responsive M&E requires that institutions target both men and women in households and provide space for capture of individual women's insights and experiences of the project and its impact.

Assessing the gender impacts of agricultural research requires a multidisciplinary approach comprised of social (e.g economics, sociology, anthropology) and biological scientists (e.g agronomists, livestock and fisheries scientists, nutritionists) as well as the use of mixed methods within these disciplines (from the social sciences, quantitative surveys and impact evaluations, qualitative interviews, focus groups, and ethnographic surveys; from the biological sciences, on-farm trials, nutrition-oriented evaluations) (Meizen-Dick et al, 2011). They may evaluate whether women's involvement in agricultural production, marketing, and processing has increased or not or whether gender

disparities in access to productive resources and control of incomes have reduced or not. World Bank (2012a) denotes that a gender-sensitive M&E system should adopt gender responsive indicators and should reveal the extent to which a project has achieved improvements in the lives and social and economic well-being of women and men. It also helps to improve project performance during implementation, facilitates midterm adjustments, and helps to derive lessons for future projects. It should monitor and measure benefits and adverse effects of the project on men and women separately and check whether the needs and interests of women and men were considered during implementation.

5.1.2 A Framework for Monitoring and Evaluating Gender Responsive Agricultural Research

Table 31 below presents a conceptual framework for conducting an effective monitoring and evaluation for gender responsive agricultural research drawing on the theoretical background presented above. It provides key dimensions, observable activities that can be monitored, indicators and data sources.

Table 31 Framework for Monitoring and Evaluating Gender Responsive Agricultural Research

Dimension	Observable/measurable activities	Measurable Outputs	Gender responsiveness: indicators/characteristics	Data sources
1. Planning and Priority setting	1.1. Stakeholder consultation meetings and other research agenda setting and strategic planning events	1.1.1 Organization strategic interventions/plans	- Gender needs/interest, priorities, preferences, opportunities, benefits, aspirations, and constraints considered and reflected in the organization strategic interventions/plans - Number of men, women participating in the strategic planning meetings/events as stakeholders	-Reports/proceedings of stakeholder consultation meetings
	1.2. Contextual/situation analysis/needs assessment	1.2.1. Organization research priorities/ research agenda	- Institutional commitment to mainstream gender in research as demonstrated from the priority investments - Goals and objectives capture aspects of interest and priority for women e.g. targeting agricultural projects that empower women - Whether information/data used for situation analysis is sex disaggregated - Whether a gender analysis is conducted and findings inform the strategic plan and research agenda	-Organizational strategic plan/research agenda -Key informants - Gender Analysis -Situation analysis reports - Use of participatory approaches -Methodology section
	1.3. Research project proposal development (Selection/choice of research team members, choice of research problem/area, conceptualization)	1.3.1. Planned research activities/ research proposals	-Number of projects with goals and objectives relevant to needs of women/men as identified from the gender analysis (GA) -Number of projects with planned research interventions targeting interests of women as identified from the GA.	-Research proposals/reports
		1.3.2. Research project teams and participants	-Number of men/women on research project teams - Number of men and women participants	

		1.3.3. Research budget	-Proportion of the total amount of the project budgets allocated to areas/topics serving women's interests. - Proportion of the budgets allocated to collection and analysis of sex disaggregated data	-Research proposal budgets
2. Research process (researchers, research focus and methodology)	**Researchers**			
	2.1. Determining gender qualifications of the research teams	2.1.1. Researcher competency profiles (CVs)	-Number of researchers on research project teams who have ever attended a gender course -Number of researchers on research teams with adequate gender skills -Number of PIs who indicate that they deliberately sought to have gender expertise on the team -Number of researchers who deliberately aim at having equal representation of men and women farmers on farm research activities	- CVs of the researchers -Research proposals/reports -Interviews with PIs
	2.2 Consulting farmers in giving feedback to aspects of the research process and outputs.	2.2.1 Stages in the research process where farmers have been involved 2.2.2 Key aspects for which farmers' feedback has been sought during the research proposal process	- Number of men and women farmer participants selected - Number of times farmers have been involved - Gender distribution of those involved - Quality of feedback and how it improved the subsequent research proposal processes	Attendance lists Invitation letters/calls for participation Scoping reports Final research reports
	Research focus			
	2.3. Determining research questions/hypotheses/variables	2.3.1 Written research questions/hypotheses/variables	-Whether they are gender focused or gender informed	Research proposals/reports
	Methodology			
	2.4. Sampling of study respondents/study sites	2.4.1 Listed study sites, sampling frame(s) and sampled respondents	- Number of steps taken to ensure gender and unique groups representation - Number of men and women sampled as individuals in household surveys	Research proposals/reports
	2.5. Selection of venues and time for data collection	2.5.1 Planned venues and timing for data collection	- Number of times researchers have considered gender sensitive data collection strategies (i.e Conducive/appropriate time and venue for women to participate in research activities, Use of language that women understand) - The specific gender sensitive data collection strategies considered, timing, venue, time etc.	Research proposals/reports
	2.6. Data collection and analysis	2.6.1 Data analytical frameworks 2.6.2 Data sheets/data files 2.6.3 Data analysis outputs	- Number of times of involving men and women in giving feedback to the research process and midway outputs - Types of farmer (men and women) feedback and how it improved the data collection process - Presence of gender disaggregated frameworks - Data sets with sex disaggregated data - Data analysis considered sex and gender disaggregation and	Research reports and publications

			differentiations	
	2.7 Validation exercise with research participants	2.7.1 Validation workshop reports	-Number of researchers that conducted validation meetings /workshops with men and women participants	Validation workshop reports
3.Research Products	3.1. Publishing and presenting results	3.1.1 Publications and presentation of technical reports and technologies	-Sex disaggregated data in publications and technical reports	Publications and technical reports
			-Technologies that address the needs of women and men as identified in the gender analysis/suited to women's circumstances	
4.Institutional capacity to integrate gender in research (organizational and individual levels)	4.1 Staff recruitment	4.1.1. List of recruited staff at different levels 4.1.2 Staff qualifications and skills	- Number of men and women recruited at different levels -Number of staff with gender skills	Staff lists from Human resource offices Staff profile and individual capacity assessment survey
	4.2. Staff in service training	4.2.1 List of staff that attended in service training	-Number of men and women that attended gender training - Number of gender trainings supported by the organization -The nature and focus of gender training - Whether staff are encouraged to share lessons gained during the gender training and to ask questions about its relevance to their work -Whether gender skills are respected within the organization (by peers and leaders)	Training reports, Strategic plans, Interviews with staff and management
	4.3. Personnel appraisal	4.3.1. Filled staff appraisal 4.3.2 Staff rewards system	- Whether gender integration is considered for higher rating - Rewards/incentives for gender responsive practices e.g staff promotions	Appraisal forms
	4.4 Budgeting	4.4.1 Budgets	-Proportion of budgets allocated to gender activities	Research budgets
	4.5 Designing policies, strategies, guidelines	4.5.1 Existing policies, strategies, guidelines	Whether the existing policies, strategies and guidelines integrate gender	policies, strategies, guidelines
5.Monitoring and Evaluation	5.1 Design and implementation of M&E activities	5.1.1. Gender sensitive, participative M&E design and data collection processes 5.1.2 Gender sensitive M&E reports	-Availability of a gender focused M&E systems in the institution - Whether the M&E assessments focus on the impact of research products on men and women using individual as opposed to household indicators. - A multidisciplinary M&E team (consisting of social and bio-physical scientists) --Use of mixed methods (qualitative and quantitative) for a deep understanding of impacts on men and women	M&E reports, Interviews with relevant personnel
6.Communication and dissemination of results	6.1 Sharing research results with beneficiaries for validation and dissemination of results/technologies use of a facilitated feedback, and knowledge exchange approach	6.1.1 Revised reports and publications 6.1.2. Clear involvement of balanced men and women groups including youth	-Validation/dissemination/planning meetings composed of men and women participants and researchers	Validation/dissemination reports
	6.2 Conducting stakeholder meetings to plan the next steps	6.2.1 Planning report that reflects the implications of the research to the different gender groups	-Validation/dissemination/planning meetings utilize gender sensitive processes (e.g separate group meetings for women farmers where appropriate)	Interviews with PIs, planning report

Based on the framework in Table 31, the following tool (Table 32) was developed to guide the evaluation of gender responsiveness of agricultural projects in NARO and RAB.

Table 32 Tool for monitoring and evaluating gender responsiveness of agricultural projects

Project title	
Type of project/Discipline	
Name of Principal Investigator	
Sex of principal Investigator	
Number of team members (Scientists)	Male (ii) Female
Number of students in project	(i) Male (ii) Female (iii) Had None
District and Country of the project	
Funding organization	
Major Objective	
Project beneficiaries	
Project classification (i) Upstream (ii) Downstream (iii) Combination	

Scale for weighting the key dimensions

1=Less important
2=important
3=Very important

Overall gender responsiveness scores

0 =Not at all
1-10 = Very low
11-19 = Average
20-30 = High

Dimensions	Components	Yes	No	weight	Total scores
A) Planning and priority setting					
Research Planning	Gender analysis (GA) was conducted during situation analysis and priority setting (i.e determining project focus)			3	
Priority setting for research agenda	Gender needs/interests identified from the GA informed the research focus			3	
Research budget	Budget includes gender specific activities(gender analysis; gender training and funds for gender technical advice)			3	
B) Research process					
Researchers	Team has gender expertise			3	
Balancing biophysical, gender and social research	The research approach/focus/design has a multidisciplinary focus (integrating pertinent biophysical, gender and social science aspects)			1	
Research design	Research design is gender focused or gender informed			2	
Implementation/Data collection process	Sex disaggregated data collected from men/women as individuals as opposed to			3	

	household heads in surveys				
Data analysis	Sex disaggregated data analysed and written up			3	
Dissemination	Research /technology products designed to reach different stakeholders including women			2	
C) Research products/technologies[5] produced					
	The project produced products/technologies appropriate for and used by men and women			3	
	Publications and technical reports presenting sex disaggregated data			2	
D) M&E					
	Provision for use of gender responsive indicators to trace impact			1	
	Provision for collecting sex disaggregated M&E data			1	
Total				**30**	

5.3 Findings

5.3.1 Overall assessment of gender responsiveness of the selected projects

It was found that both countries were implementing a range of projects where gender was integrated in one way or another and many scientists perceived themselves to be gender responsive. However, their perception was based on their limited understanding of what constitutes gender responsive research. In-depth analysis of the selected research projects using the gender responsiveness monitoring and evaluation framework developed in this study showed that a vast majority of the research projects did not consistently integrate gender in the entire research cycle. Only two out of 14 projects assessed: 1 in NARO and 1 in RAB scored average (12/30 and 19/30) respectively on gender responsiveness (see score in Table 33).

[5] Technologies are defined as "'practices or techniques, tools or equipment, know-how and skills, or combination of the aforementioned components' that are used to enhance productivity, reduce production and processing costs, and save on scarce resources or inputs, such as labor or energy."(Ragasa, 2012:5).

Table 33 Project gender responsiveness scores

No.	Name of the project	Score	Level of Gender responsiveness
	UGANDA		
1	Evaluating cage productivity in crater lakes in South Western Uganda	4	Very low
2	Up-scaling innovations for quality seed, potatoto production and availability in Eastern and Central Africa {Uganda is our focal point}	5	Very low
3	Promoting production and utilization of chick pea in South Western Uganda agro-ecological zone of Uganda	6	Very low
4	Harnessing crop-livestock integration to enhance food security and livelihoods resilience to effects of climate variability and climate change in Eastern and Central Africa	12	Average
5	Knowledge and perceptions of smallholder dairy farmers of cattle disease burdens in selected agro-ecological zones of Uganda	3	Very low
6	Improving Market Access for pineapple chain actors using the Participatory Market Chain Approach (PMCA) in Uganda	0	Not all
7	Regional cashew improvement network for Eastern and Southern Africa	2	Very low
8	Pest and Disease management of citrus and simsim, 2011 - 2017	3	Very low
9	Commercializing sweetpotato production in areas with long dry periods	3	Very low
10	NASE 14 development project	6	Average
	RWANDA		
11	Enhancing access to land and security of tenure for the small holder farmers, especially women in Rwanda	19	Average
12	Utilization of bean innovations for food security and improved livelihoods in Eastern and Central Africa	7	Very low
13	Sustainable Intensification of maifze legume based farming systems for food security in Eastern and Southern Africa(SIMLESA)	3	Very low
14	Bio fortified potato varieties to help overcome micro nutrient malnutrition in East Africa and South Asia funded by the Harvest Plus Challenge Program through CIAT and IFPRI	1	Very low

Overall gender responsiveness scores
0 =Not at all
1-10 = Very low
11-19 = Average
20-30 = High

5.3.1 Analysis of Gender responsiveness of researchers: A focus on Case Projects

While a total of fourteen projects undertaken in Rwanda Agriculture Board (RAB) and National Agricultural Research Organisation (NARO) in Uganda were assessed for gender responsiveness, only four projects were deemed to be applying gender into their research processes. This assessment was based on their affirmative responses regarding whether they paid attention to gender during planning and priority setting, research focus and objectives, implementation and the impact of the research technologies on women farmers. Table 34 below profiles these projects;

Table 34 Profile of Case Projects: Uganda and Rwanda

Project Title and period	Organisation/Country	Objectives	Funding agency
1. Enhancing access to land and security of tenure for the small holder farmers, especially women in Rwanda) Nov' 2012 - 3^{0th} Oct 2014	Rwanda Agriculture Board (RAB) Rwanda	The major objective was to enhance land tenure security for small holder farmers especially women for improved agricultural productivity and food security in Rwanda. To eenhance the understanding among policy makers of the challenges/opportunities of the land registration program and its impacts on smallholder farmers, especially women in Rwanda To raise community awareness on legal provisions regarding women land rights in Rwanda To enhance the capacity of community leaders and paralegals in resolving land disputes.	RAB
2. Utilization of bean innovations for food security and improved livelihoods in Eastern and Central Africa)	Collaborating RAB in collaboration with researchers in Burundi, Rwanda and Uganda	The objective of the study was to obtain high yielding and multiple resistant bush and climbing bean varieties adapted to different agro-ecological regions of East and Central Africa that meet acceptable local, regional and international market standards	RAB and ASARECA
3. Promoting production and utilization of chick pea in South Western Uganda agro-ecological zone of Uganda Three year project	Western Uganda	Improve Household food security and nutrition in small holder farming systems	McKnight Foundation
4 Harnessing crop-livestock integration to enhance food security and livelihoods resilience to effects of climate variability and climate change in Eastern and Central Africa). (Jan 2012 – December 2013).	Regional –Burundi, Kenya, Tanzania and Uganda	To improve resilience and sustainable productivity of smallholder dairy and vegetable production units in vulnerable (Eastern and Central Africa (ECA) region To promote pro-poor policies to facilitate transformation of dairy and vegetable production units into sustainable and resilient profit making enterprises To empower actors along the smallholder dairy and vegetable value chain and To enhance awareness and knowledge on successful gender responsive information on dairy and vegetable value chain innovations.	ASARECA/ World Bank

Source: Fieldwork findings, 2016

Planning and priority setting: The practice vis a vis the ideal

The four case projects profiled in Table 34 above and detailed in Appendix 6 seemed to be gender responsive. Gender responsiveness requires undertaking a gender analysis at the planning stage to understand the needs, priorities, opportunities, constraints and benefits to inform the research focus and priority (Meizen-Dick et al, 2011; Elias, 2013). On the contrary, findings indicated that the researchers did not undertake a gender analysis to inform their choices of projects. Although they claimed to have attempted to do it, they could not explain how this was done; others justified what they did or did not do. Some argued that it was done in an 'indirect way' which could not be traced contrary to the ideal practices that require planning and setting priorities for gender responsive researches; other PIs claimed ignorance while some openly expressed no appreciation of the relevance of gender analysis while others did not care about it (Table 35).

Table 35 Justifications for not conducting a gender analysis

Justification	Verbatim quote (from PIs interviews)	Sex	Uganda	Rwanda
Gender analysis done indirectly	The gender analysis was there though indirectly… We had to know what men and women and the youth do and the challenges they faced in production. Since our major focus was on chickpea as a new crop, we tried to look at the needs, constraints and how the different categories will benefit from the project.	F	√	
	Our priority setting was based on the needs, constraints of different categories and their benefit from the project…. We also had plenary sessions and discussions with different categories such as children, women and the like where we could brainstorm and agree	M		
	We did have community participation but targeting gender was relative and indirectly			
No need for gender analysis /lack of appreciation of gender	There was no need to do a gender analysis because most fisheries are men dominated. The only need was a consideration of diversifying or broadening a project from ponds and the one who requested to do the project was a men [brought it to them	F	√	
Project done in phases/the way it was organized	The first phase did not have clear gender planning so there were some… it came in the second phase where World Bank insisted on gender.	F	√	
	The way the project was organized, we could not go into these details. The projects are brought at RAB but implemented by programmes at zonal levels	M		√
Presence of a gender champion/focal person. Not sure whether it was done	But there was someone who was interested in it and I think she did it … though I do not have details on how it is done.	M	√	√
	However, from the gender analysis findings, we identified different needs and constraints of men and women but we mostly considered the women's needs	M	√	
Gender outcomes even without conducting the GA	Although these did not clearly come out, there were so many outputs that strategically targeted gender –gender is seen in the outputs	M	√	√
No skills to do it	Most of us never went for specific gender trainings but got on job trainings from former NGOs like CIAT who were working with small holder farmers, ….So the gender skills were acquired on job and not adequate……	M	√	

Source: Fieldwork findings (2016)

Other Principal investigators (PIs) who openly mentioned that they did not do gender analysis justified their practices by noting that they did not care about it and/or they did not see its relevance to their science disciplines as the voices below indicate.

> We didn't really care that much about gender but though all people were involved through participation. The problem with cashew is a crop which is relayed with land for which women have no ownership (Male PI, NaFORRI)
>
> This was not done despite the fact that it is mainly women who sell the sweet potato vines grown in the valleys/wet areas and work in the low lands during the dry season (Male PI, Ngetta).
>
> The breeding process starts with scientists having to set priorities for what to look for, basically they prioritize increased yield and processing quality of the cassava. Because selection involves very many initial comparisons sometime reaching 7000 lines, farmers are not normally involved at the early stages due to the logistics and complicatedness involved. However, when the two key parameters have been achieved, i.e. increased yield and processing quality, then the scientists give farmers a chance to express what more they would like. Women at that stage would desire cassava that stores well and longer in the field, those who take cassava fresh may want a variety with a good taste. For those who eat cassava bread would like a variety that sticks together. As such scientists determine the priorities for the initial research specifically looking for what limits or enhances optimal cassava production and processing (Male PI, NACRRI).

The above voices revealed that while gender analysis is central in contributing to gender responsiveness of projects, it was not done even by the projects with some gender considerations. Such a practice ignores women's needs, and

limits their inclusion and participation in research activities. This indicates that despite efforts to promote gender responsiveness in agricultural research, many researchers continue to be gender blind at the research formulation stage.

5.3.2 Research teams

Ideally, gender responsiveness requires paying attention to gender in constituting research teams. Out of the four projects, only one hired a gender expert, while the rest relied on their own perceived gender knowledge and skills. Regarding gender balanced composition of researcher teams and multidisciplinarity, two projects comprised of equal numbers of men and women team members, while one project had only one woman on the team.To most of the researchers, gender meant having some women and men farmers participate in the research, having a gender expert (usually a gender focal person on the team) and a few gender statements highlighted in the proposals to attract the donors. Perhaps that explains why some research teams integrated gender at the proposal stage and left it out during the implementation stage.

5.3.3 Implementing Gender Responsive Research

Though all the four case projects claimed to have collected sex desegregated data, this was not evident in their project documents. Generally, findings indicated that the data was not sex disaggregated except in one case where the study was women focused. Sex-disaggregated data collection and analysis plays a crucial role in identifying sources of bias and inequality as well as bottlenecks in furthering food security and agricultural development to inform policy and project design (Meizen-Dick et al, 2011).

The above case projects portrayed a lack of understanding of what collecting sex disaggregated data entails. At times they equated it with mere participation of women and men in research. In one of the projects, the PI reported having *"kept beneficiaries at heart"* by recognizing and involving them in the research implementation …*what gives me satisfaction is considering women and men, keeping beneficiaries at heart during development of technology"*. Keeping beneficiaries at heart may not be sufficient, in the absence of clear procedures for collecting and analysing relevant sex disaggregated data to understand and address gender inequalities.

Another PI explained his understanding of collecting sex disaggregated data in terms of the number of women and men reached by the research team when she noted that: *"we collected sex disaggregated data, for instance, like out of 100, women would be like 45 because they had gardens around the lake and use it for water, men would be like 15%, we had also children and the rest were youth".* However, gender responsive research should go beyond simply counting how many women and men are involved rather it should question the underlying gender relations, norms, practices and perceptions that may not be reflected in the data. Unless this is done, the underlying gender based constraints in agriculture such as unequal access to land and other resources will be inadequately tackled in agricultural policies and strategies.

Most researchers did not understand the meaning of gender responsive research. While some thought it was having a gender specialist on the team, others thought it is when a PI has gender expertise, having team members that attended gender training and the presence of a social scientist (Table 36).

Table 36 Participants' voices on their understanding of gender responsive research

Participant understanding of gender responsiveness	Quotes from the data	Sex	PIs in Uganda	PIs in Rwanda
Having a gender specialist on the team	We had a gender specialist on the team from ASARECA and …….(mentioned some names of gender champions in the organization)	M	√	
	The team had some gender experts like me. I was the TOT with sensitization in gender training and mainstreaming under ASARECA. So we had a clue but the expectations of gender focus on our sector were limited. Teams also had natural research scientists	F	√	
	We had a gender focal person, pathologist, social economist community development officer	M	√	
	But there was a Gender focal person, socio-economist and agronomist who had gender training in Tanzania on the project who knew gender	M		√
PI with gender expertise	As a PI, I also had experience in gender; the NARO gender expert …. also helped us so much together with the Kenyan counterpart…… a gender expert who inspired me to integrate gender	***F***	√	
Team members who have ever attended gender training	All the team members had gender trainings	*F*	√	
	Projects like these; gender does not come out well. We did not have a gender specialist parse but we had Alice-one of the team members who attended a workshop in Tanzania and she came back and trained us	*M*		√
Presence of a social scientist/Economist	The project had social scientist/social economist, Livestock health science and animal nutritionist. The social researcher …….one of NaLIRRI staff was instrumental and did the social aspects	*M*	√	

Source: Fieldwork findings, 2016

There was no differences between the researchers who admitted not applying gender and the case project leaders as illustrated by some of the PIs. In both cases, having a gender expert on the team was identified as one of the measures of gender responsiveness; very few projects had gender experts. In Rwanda, very few projects had gender experts on the team (3/7) meaning that there were limitations in terms of technical support for integrating gender on the projects. Most projects depended on gender focal persons who were overstretched by serving on several teams. Equating gender responsive research with the presence of one gender expert on a team is skewed and limits application of gender into the entire research process.

5.3.4 Goals, objectives and gender focused interventions

This study assessed how researchers paid attention to the topics they selected, framed the research questions and study variables, as well as selection of interventions. Project documents were also reviewed to assess gender responsiveness of the focus, goals, objectives and the subsequent interventions. Projects that had their goals focused on food security and livelihood improvement (**project 3**); time and labour saving technologies and work risk reduction for women (**Project 4**) were scored positively on this gender responsiveness indicator since the interventions targeted critical needs of men, women and children.

The four case projects above indicate that although gender analysis was ignored at the planning and inception stage, most of the interventions were found to be relevant to both women and men. Project documents revealed that most

projects focused on crop productivity, food security, time and labour saving technologies and livelihood improvement. While three of the projects were gender focused[6], others were general in design and implementation.

5.3.5 Approach, data collection and analysis

Employing appropriate research approach and selecting appropriate participants is crucial in collecting relevant gender data. It was found that researchers had varied understanding of gender responsive research approaches. To some, it meant encouraging participation of both women and men researchers in research activities. Although this is important, it is one way of being gender responsive. Studies have noted the importance of involving women scientists during fieldwork, especially if they have local knowledge or where they are best suited to access women participants and community members due to the socio-cultural complexities (Meizen-Dick, 2011; Elias, 2013). In some communities such as Islamic dominated societies, there are restrictions on women and men's interaction. Such religious belief that may affect the research process requires involving women researchers in the research process to facilitate women's participation.

Other than gender balanced research teams, researchers should be well equipped with adequate skills to conduct gender responsive research. A critical analysis of most projects revealed that researchers made efforts to include men and women in the research activities though sometimes these efforts were unintentional. However, some PIs mentioned how their project collected sex disaggregated data but did not have a description of how that was done. Some responses on the researchers' understanding of collecting sex disaggregated data leave gaps as the Table 35 illustrates below.

Table 37 Researchers' understanding of sex disaggregated data: The four case projects

Project	Researcher understanding of sex disaggregated data	Implication
1. Enhancing access to land and security of tenure for the small holder farmers, especially women in Rwanda);	Review of literature especially the legal and policy documents to understand the situation of Rwandese women in relation to land. The project focused on women so we had to disaggregate data as a matter of keeping in line with our objectives.	There was some level of understanding sex disaggregated data though this was a women focused project
2. Utilization of bean innovations for food security and improved livelihoods in Eastern and Central Africa)	Considering households with elderly having orphaned children or a good number of orphaned children. Identifying vulnerable groups and targeting households with HIV/AIDS composed of the elderly affected and women headed	Misunderstanding collection of sex disaggregated Collection of sex disaggregated was misunderstood or completely not done No indicators to measure
3. Promoting production and utilization of chick pea in South Western Uganda agro-ecological zone of Uganda)	Targeting the Household, collecting the data through discussions with different groups to and talking about priority areas. Involving children, women and the like where Identifying gender in all these processes.	Misunderstanding collection of sex disaggregated Collection of sex disaggregated was misunderstood or completely not done No indicators to measure
4. Harnessing crop-livestock integration to enhance food security and livelihoods resilience to effects of climate variability and	Considering women and men Keeping beneficiaries at heart during development of technology It was a requirement by the funder; we had to go in details to find the existing situation of men and women for our intervention to be	Misunderstanding sex disaggregated means it was data was no disaggregated

[6] Gender focused research in this study was taken to mean the researcher consideration of the role of gender in the design, implementation, and dissemination of agricultural innovations, agricultural products benefits to poor rural women and men, girls and boys.

climate change in Eastern and Central Africa).	relevant. This was a requirement and we had to go in the details of how men and women would benefit so we had to interview them as individuals.	
Other projects		
Promoting production and utilization of chick pea in South Western Uganda agro-ecological zone of Uganda	The structure of the report in some instances must have had a composition of gender reflections In line with targeting the households, we did collect the data. Just like on a little experience as I said, we could discuss with different groups to talk about priority areas. We also had plenary sessions which would involve children, women and the like where we could brainstorm and agree. At first the social economic study followed sex disaggregation during the sampling. We did not focus on gender because that would be a typical gender issues study. Data was not collected by gender There were no built in indicators to collect data and report by gender	Misunderstanding collection of sex disaggregated Collection of sex disaggregated was misunderstood or completely not done No indicators to measure

Source: Fieldwork findings, 2016

It was clear that the projects did not pay special attention to sex disaggregated data. The research processes were short of the ideal gender practices. For example, by merely balancing research teams by gender, the inclusion of both women and men in research activities coupled with ill-equipped researchers about real gender responsiveness can only yield little for gender practices and outcomes.

In addition to lack of focus on gender, data was not collected by gender because there were no inbuilt indicators to facilitate data collection and reporting by gender. Researchers mentioned various approaches used. For case **project four**, it was about how the technologies produced and adopted. The PI argued that;

> Re-development of the forage chopper focused on increasing users' participation in the process. Instead of introducing a completely finished machine to the farmers, the new approach involved farmers in setting some of the parameters required to ease machine operation and maintenance. Research into the adoption of the first machine revealed a number of resources that could be used to lower the cost of the machine. This was a regional project and each country PI would consider the different gender norms and practices. This technology was produced through participatory approaches that were inclusive of age, gender and cultural needs. Specific indicators used to trace impact on men and women. World Bank insists on those indicators (Female PI, NaLIRRI).

However, the other aspects of gender responsive data collection and analysis , such as seeking informed consent from men and women participants, conveniently scheduled activities to allow both men and women to participate in the research process (Elias, 2013; Njenga and Gurung, 2011) were not mentioned. For example, scheduling the time and venue for research activities requires researchers to consider women's heavy workloads; restricted mobility; literacy levels as well as the need for privacy. Where men and women act as respondents, gender sensitivity requires that the data collection process recognizes possible gender based hindrances to true expression (Elias, 2013). In settings where women are likely not to be open in mixed sex settings, separate women and men interviews should be conducted. Data should be sex disaggregated and feedback given to research participants - both women and men.

Case project **4** highlighted gender inclusive data collection approaches that involved training research assistants to be gender sensitive; focusing on women as participants; allowing participants to determine the convenient time and venue. The gender blind processes focused on community groups as farmers in general rather than focusing on women and men differently and working out appropriate methods to capture the information. The processes were largely not gender responsive. Below are examples of gender responsive practices by principal investigators in

Rwanda which depict training for gender responsiveness, targeting both women and men, meeting women in appropriate spaces.

> After pretesting the tools, we adjusted them to be gender sensitive
>
> Research assistants/enumerators were trained in gender sensitivity such as body language, general discipline-etiquette on how to talk to men and women respondents and understanding the questionnaires
>
> The survey starts at 8:00am until evening so all the men and women are targeted irrespective of the work they do
>
> Meeting women in their committees, training them so that they also train others. Because we empowered women to take charge, they were able to spread the news about the project
>
> The research assistants and enumerators were trained in gender knowledge and research skills and we worked with them to ensure that they followed the training guidelines they received
>
> Time and venue were determined by individual communities –most interviews were conducted in the afternoon because most women are engaged in the morning hours

Findings show that although the researchers expressed willingness to apply gender, they lacked the capacity to conduct gender responsive research because some people train but fail to understand gender; the trained staff sometimes leaves the organization and the lack of competent gender experts to support the projects as one PI lamented "we needed the gender experts to help us understand some social issues on the research" (Male, PI, RAB).

5.3.6 Research products: Analyzing the benefits of interventions by gender

The researchers listed some of the technologies they promoted in their research projects. These included simple water harvesting and labour saving technologies, drought tolerant forages and homemade feed technologies, vegetable and milk processing. These technologies have the potential to change not only the farming systems but also transform gender inequalities into conditions of gender equality. Findings indicate that the projects benefited men, women, children, HIV patients and other vulnerable groups such as the poor. The identified benefits for women included improved nutrition due to introduction of nutrient rich crop varieties; reduced work risks due to the design of an improved forage chopper machine that was safer and convenient to handle; information access for market opportunities. Gender responsive agricultural research should therefore be assessed on its ability to address the needs of women and men such as improved nutrition for children, improved incomes; labour and time saving for men and women.

Generally, although the interventions targeted the needs of farmers in general, they ended up having positive implications for both men and women. This is because they focused on issues that affect both men and women such as improved crop varieties and productivity, soil fertility for improved productivity; time saving technologies and land issues. Three research projects specifically targeted women meaning that these deliberately addressed the needs of women in Rwanda.

Dissemination

Gender responsive agricultural research products and interventions are likely not to be adopted or appreciated if women and men are not effectively targeted during dissemination through strategies that meaningfully engage them. Researchers mentioned that both women and men were targeted during dissemination meetings for the research products. The study found out that dissemination was project specific where each project had its own approach with

no uniform communication strategy. The four case projects adopted participatory dissemination approaches such as gathering farmers – both men and women and explaining to them how to use developed technologies, consultations on the appropriate time and venues, involvement of district officials in the mobilization process as well as setting up training centres based on locations for easy access as detailed in the Table 38 below;

Table 38 Project Dissemination strategies

Project	Dissemination strategy
1. Enhancing access to land and security of tenure for the small holder farmers, especially women in Rwanda)	▪ Media i.e. Radio programs to share information with a broader audience - targeting policy makers, through media. ▪ Workshops and community forums targeted policy makers and community and women leaders and CBOs. ▪ Theatres and dramas within the project sites ▪ Documentary on women's land rights for wider dissemination of information. ▪ Publications in form of a papers, policy briefs, posters and leaflets, pamphlets and brochures
2. Utilization of bean innovations for food security and improved livelihoods in Eastern and Central Africa)	▪ Innovation platform committees disaggregated by sex but mainly dominated by women ▪ Discussions were on which varieties are preferred by women and men and why? e.g women preferred beans that take a short time to cook while men were focusing on varieties that are likely to fetch more money. Other women preferred varieties that grow well in poor soils especially those who found the cost of fertilizers high etc. ▪ Meeting women in their committees, training them to also train others. Because we empowered women to take charge, they were able to spread the news about the project
3. Promoting production and utilization of chick pea in South Western Uganda agro-ecological zone of Uganda)	▪ Dissemination using different pathways. ▪ Farm demonstration ie, how to plant the crop till to the harvesting ▪ We had several agricultural shows like in Western and Central ▪ Local media like radio, TV and local newspaper RUMURI ▪ On farm trainings, demonstrations and directives ranging from the production to consumption and market strategies for chickpea
4.Harnessing crop-livestock integration to enhance food security and livelihoods resilience to effects of climate variability and climate change in Eastern and Central Africa).	One stop dissemination centre determined by where the technology was applied e.g forage chopper and water harvesting would mean gathering farmers where there is usage of the technology.

There were other dissemination channels included the trials on farm, phone calls, pursuit for inclusivity, interaction with leaders and demonstrations as illustrated by some of the quotations below;

> There is a pursuit for inclusivity of both men and women during dissemination. The dissemination involved going through local networks of partners such as farmer based organizations, NGOs, Schools and Cassava seed companies. Some of the NGOs they worked with included CHAIN, AFRII, OXFAM, CARITAS, BUKADEV and SOCADIDO. Mixed farmer groups were targeted. The partners had demonstration gardens, and some demonstrations gardens were at the ZARDIs. With the inclusiveness approach, opportunities are given to both men and women farmers. A balance in the reached groups was sought in regards to sex, and age of the participants (Men, PI, NACRRI).

We have demonstrations, seed standards. Cashew was basically on improving livelihoods but due to nature of the crop, the focus was on livelihood (Men PI, NaFORRI).

In Rwanda, the dominant method was the use of the media through radios and documentaries. Others are meetings and presentations in various fora. Given the differences in gender roles, the heavy use of media may be inappropriate for women and tends to favour men who own radios and often have the leisure time to listen to them. Women spend much of their time working in and outside the home with little time for leisure to attend to radio announcements.

5.3.6 Monitoring and Evaluation of interventions

The study assessed how the research process was monitored and evaluated for gender responsiveness. Findings show that there was no evidence of gender indicators during project evaluation. Participants mentioned having used participatory evaluation, involvement of both women and men in farm evaluations, mid and end term evaluations. However, there was no clear evidence on how these processes were conducted. Well designed gender sensitive indicators can save researchers the trouble of counting only bodies and enable them measure outcomes such as the percentage increase in women's participation and increased sales and yields (World Bank, 2012b; 2008).

Participant voices on approaches and process of project Monitoring and Evaluation

It was participatory evaluation that's why it was mainly adaptive research more on the environment product. We had a routine internal audits and the team had both men and women. The M&E person and the Natural resource officer were all women (Female PI, MBAZARDI)

Women and men come to learn and we evaluate ie why we have on farm evaluation to come learn and adopt; we also look at issues like; what challenges and how they are overcoming them. The difference is that men are money oriented. Women who are large scale farmers are also market oriented. But in such cases we have to first remind them on what the 1st priority of the project which is on nutrition. For example in Western Uganda when farmers grow beans, they would almost sell off everything creating a nutritional gap but those who grew a lot were the ones who had to look for the market. The advantage of chickpea is because it had more market and was more expensive in the market compared to beans hence making them to subsidize or grow or buy other legumes for their households (Male PI, MBAZARDI)

Yes. We had middle term evaluations and end of project evaluations where we were looking at how crop has changed farmer's status in their homes. Like those that were having short proteins for short time. Eg most of the beans were sold away thus protein intake but chick peas grow tolerantly and survives on low moisture and is harvested in the dry seasons making reserves during the dry season for household nutrition and food security (Male PI, MBAZARDI).

This was done continuously because the process was participatory–back and forth with the users especially women contributing their ideas. Implementation was very effective because farmers appreciated gender responsiveness and their appreciation continued even after adoption of the technology.-for example a group of women when they heard that I got an accident-which was fatal, mobilized themselves to come and visit me because they looked at me as their own who had them at heart (Female, PI, NaLIRRI).Innovations tested on the market to determine their consumption by men and women (Female PI, MUZARDI)

While the PIs mentioned the use of participatory approaches to understand what farmers had gained through routine internal project audits, on farm evaluation, mid-term evaluations and market testing of the products, they did not use common standardized evaluation approaches. According to Meizen-Dick et al, (2011), monitoring and evaluation can be done by the use of both quantitative and qualitative indicators such as the number of staff members integrating gender into their work and how this was done. Assessing the gender impacts of agricultural research requires a multidisciplinary approach comprised of social (e.g economics, sociology, anthropology) and biological scientists (e.g agronomists, livestock and fisheries scientists, nutritionists) as well as the use of mixed methods within these disciplines - from the social sciences, quantitative surveys and impact evaluations, qualitative interviews, focus group discussions, and ethnographic surveys; from the biological sciences, on-farm trials, nutrition-oriented evaluations

(Meizen-Dick et al, 2011). Research may focus on variables that may measure the increase or decrease of women's involvement in agricultural production, marketing, and processing and whether gender disparities in access to productive resources and control of incomes have reduced or not. World Bank (2012a) denotes that a gender-sensitive M&E system should adopt gender responsive indicators to reveal the extent to which a project has achieved improvements in the lives and social and economic well-being of women and men. It also helps to improve project performance during implementation, facilitates midterm adjustments, and helps to derive lessons for future projects. Benefits and adverse effects of the project on men and women should be monitored and measured separately and check whether the needs and interests of women and men were considered during implementation.

Findings show that most of assessed projects lacked clarity on observable and measurable characteristics of gender responsive research that would enable funders, researchers and other development practitioners to certain whether what is purported to be gender responsive research is actually so. The key dimensions and measurable characteristics that have been proposed to guide the conduct of gender responsive research include planning and priority setting at individual and institutional levels, research implementation, researchers, Monitoring and Evaluation and research products. According to World Bank (2012a) such characteristics would enable funders, researchers and other development practitioners to make an objective judgement as to whether what is purported to be gender responsive research is actually so.

In Rwanda, **Project 1** on women and land provides an example of a gender responsive M&E process. Another project only mentioned they had a budget to support gender responsive M&E process but it was not clear on how this was conducted. The budget was interpreted to support the involvement of both men and women participants rather than conducting M&E work as mentioned that: *"There was a budget item for M&E and this enabled us to reach men and women beneficiaries"* (Men PI, RAB).

5.3.6 Budget for gender activities

Availability of funds for gender specific activities during research is not only an important incentive but also a requirement for conducting gender responsive research. However, findings across all projects indicated the lack of gender budgets to support gender activities as some of the PIs elaborated below;

> Because of budget issues, we could not cater for gender consultancy (Male, PI, MBAZARDI)
>
> Gender did not have specific budgets (Female, PI, NaLIRRI).
>
> Gender did not have designated separate budget. The social scientists got very little/small budget and they kept on complaining that the project administration did not consider them serious (Male, PI, NaLIRRI).
>
> There was no specific budget for gender (Female, PI, MUZARDI)

There were held assumptions that the socio-economists' budget should cater for gender activities as one director explained:

> When a social economist develops a budget, then it includes issues to do with gender, because that is the person from social economics either as a scientist or as a programmer to ensure that there is gender mainstreaming"…(Male, Director, MbaZARDI).

Such an assumption limited researchers' interest in gender and therefore lack of specific gender budgets implicitly affected gender responsiveness of projects. PIs in both countries indicated that incorporating gender in research requires a lot of funding. On the contrary, they noted that they are being constrained by the lack of specific gender

budgets to conduct gender focused activities such as training. One gender focal person mentioned*: "I have no specific budget as a gender focal person. The problem is that the gender focal person at Headquarter has no funding to move to those people"*. The budget was activity based but for the majority of the project, gender was excluded except a few that were women focused (1/7). In relation to this, a Principal Investigator said that: *"We itemize activities and allocate funds accordingly. There was no specific budget for gender activities. There were activities such as training which showed that women were budgeted for".*

6. Conclusions and Recommendations

Conclusions

Institutional gender framework and practices

Findings indicate that both NARO and RAB have made some institutional efforts to integrate gender in their research organizations, facilitated by leader champions in both organisations. Positive practices for gender sensitive research in the two countries have included the establishment of the gender focal person structure that is coordinated nationally and has presence in most regional institutions. These have been critical in establishing a gender leadership structure (Gender Focal Persons) that has enabled a reasonably conducive environment for gender integration.

In both countries, the GFP structure has largely been informal and driven by voluntarism with no terms of reference, no resources and no accountability framework. The second clear practice has been leaders' political will and supportive narrative for gender integration in research. This has however left the scientists hearing the talk but lacking meaningful support in form of clear implementation guidelines, staffing and resources. The gender structures were found to be too poorly facilitated to execute their mandate, making genuine gender integration to remain elusive in both organisations.

In Rwanda, the President of the country (His Excellence Paul Kagame) has played a strong role in encouraging women's representation in all government bodies including research. This also seems in part to inform the understanding of what gender is in the Rwandese society. Comparably, in Uganda, the government under the leadership of His excellence Yoweri Kaguta Museveni has since the Beijing conference embraced gender and women's empowerment. The political atmosphere has therefore contributed to each institution taking an effort towards gender integration. Government support and presidential political will is equally observed to drive some gender efforts. The political atmosphere was found to have greater influence on researchers' perceptions about gender in Rwanda than Uganda.

Although the gender policies and strategies in the two institutions were found to be lacking, RAB had an edge over Uganda. Rwanda has adopted ASARECA gender strategy but this only guided the appointment of the gender focal person. Rwanda also has in place an agricultural gender strategy that RAB subscribes to as well as a Gender Monitoring Office that helps to trace gender changes nationally. The direct role of this policy on the scientists was not visible except in ensuring women representation and establishment of a gender focal person structure. Uganda's NARO was in a process of developing a gender and diversity strategy not a driver in itself but an opportunity for the immediate future.

In both countries, donor influence and the requirement that research should be gender responsive were found to be a strong driver towards current gender efforts among scientists. Integrating gender in research proposals is becoming a norm aimed at fulfilling the funding requirements. However, donors' efforts often lack strategic follow up to gender integration by scientists when research is being implemented.

Distinct barriers to gender integration in both institutions were found to be: the lack of policy guidelines, the largely informal approach to gender, negative opinions towards gender and women's empowerment and the misconception about what gender means and its relevancy in agricultural research for many of the scientists.

Researcher gender capacity and application

On researcher capacity to integrate gender in research, access to gender training was found to be low and most of the training efforts were planned and facilitated by other organizations. The trainings were not institutionally supported and were not holistic enough to equip researchers for gender responsiveness in the entire research cycle given researcher weaknesses in applying gender skills acquired during the training. There were several gender misconceptions such as focusing on representation and sending women for further graduate studies like PhD. Also, given that the NARO research operations are structured around commodities, it was difficult for the researchers to fit gender into existing mandates and there were no institutional mechanisms for transferring learning after training.

While most scientists were positively disposed towards gender and were supportive of its integration in research, the capacity to conduct gender responsive research was found to be very low. Applying gendered research was affected by the lack of researcher competence, lack of reward/incentive systems, lack of organizational and institutional support mechanisms and some negative perceptions towards gender integration. For the most part, supervisors who can play a role in influencing training transfer were not helpful to most of the scientists. There is a likelihood that the capacity training strategies for these scientists in Rwanda and Uganda were lacking and falling short of the required effort. This study found very limited gender skills and knowledge among scientists, with some that had been trained, unable to apply. The few that made an attempt to apply in both Uganda and Rwanda were researchers driven by individual passion and appreciation for gender. However, these were themselves limited in their capacity to be gender responsive. Based on the monitoring and evaluation framework presented in this report, the study found only 2 projects were rated average on the gender responsiveness scale for both Rwanda and Uganda. For the majority of projects, there were only pockets of gender considerations.

A synthesis of the findings has demonstrated that gender responsive agricultural research in both NARO and RAB is very weak. Major donors have increasingly supported integration of gender in agricultural research which has driven gender efforts but this has mainly been during the proposal stage. Gender is not given attention during the planning, implementation and monitoring stages except during dissemination where researchers appeared to be gender sensitive in terms of balanced representation for women and men. For researchers that perceived their projects to be gender inclusive, their processes were unsystematic and many times, there was no evidence for the claims.

Recommendations

Multidisciplinary teams: There is need for multidisciplinary teams to support the scientists with gender experts. The GFPs themselves are not gender experts and therefore, projects need to be conceptualized, planned and implemented through a multidisciplinary lens with technical backstopping by gender experts where needed.

Nurturing individuals with personal drive and passion for gender: For gender responsiveness to be realised, there is need for personal transformation in terms of drive and passion. Training should target individuals (scientists and leaders) to transform their attitudes and values and influence them to be gender responsive. Igniting passion and nurturing it will involve institutional support for the individuals who express that passion with resources and opportunities.

Gender integration to start at the prioritization and planning stages: Gender should be considered at the research planning and priority setting phase to enable the interests and needs of women and men inform the research projects.

Strengthen and support gender structures and policies: There should be a deliberate effort to strengthen gender structures and put in place policies that support gender responsiveness. The necessary resources, institutional environment and well trained personnel need to be in place to support these efforts.

Continuous training of agricultural researchers and management staff for mindset change: This is necessary to promote researcher understanding of gender and its relevancy in agricultural research. All researchers, Management including top Management should be targeted. This should be supported by availing the necessary financial and human resources to deliver transformative trainings that allow mindset changes on gender. Agricultural scientists need to fully understand why gender is important, processes of gender responsiveness and implications for equitable outcomes of their projects. This way, gender responsiveness will not be perceived as a donor requirement to win funds but the right thing to do. Researchers can also be trained on the gender responsive research process that involves collection of sex disaggregated data, analysis and including the use of social science and qualitative approaches, mixed methods and publishing gender responsive and informed research. Mixed methods aid in showing bio scientists the importance of social science data.

Organizational learning capacity building approach for institutional transformation: This entails learning that takes the phased nurturing approach to building gender capacity other than one off training. It also considers a systems approach to change, where individual scientists, administrators, policies, resources and work environment are all targeted. This will entail departing from politically correct gender narratives, towards genuine change in gender responsive practices at organization, farm and community level.

Accountability for gender: Agriculture research organizations should promote a strong accountability mechanism for gender issues in research. Gender issues should be tracked in programme activities, outcomes to promote accountability and understand progress and obstacles. Monitoring and evaluation frameworks and indicators should therefore be gender responsive.

Transforming the talk into action: Although leaders talked to researchers about the need for gender integration in research, the talk was not followed by supportive and practical actions. Leaders therefore need to change the gender rhetoric to practical action if gender is to be effectively integrated in agricultural research processes. There is need to support researcher capacity (gender knowledge and skills), provide the necessary resources for gender activities and strengthen the institutional capacity for gender responsiveness.

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Websites

www.gatefoundation

www.naro.go.ug

Annexes

Annex 1: NARO Secretariat Structure

Doccop.doc

Source: www.naro.go.ug

Annex 2: NARO Organogram

oganogram.doc

Source: www.naro.go.ug

Annex 3: The Core Functions of RAB Agricultural

Core functions of RAB.doc

Annex 4a) : Participant List - National Research Organisation (Uganda

Participant list uganda.doc

Annex 4b): Participant List - Rwanda Agriculture Board (Rwanda)

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Annex 5: Case project profile and summary findings based on the M&E framework

Annex 5 Case project profile and su

Appendix6: Dissemination Plan for Research Rresults of the project

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