Gender Roles and Relations in the Wheat Production of Nigeria: Strengthening the Participation of Women

Case Study Report Prepared for the Support to Agricultural Research for Development of Strategic Crops in Africa (SARD-SC) Wheat Project

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Executive Summary

The SARD-SC project, funded by AFDB and led by the International Center of Agricultural Research in the Dry Areas (ICARDA) in partnership with local stakeholders, aims to reduce wheat importations while simultaneously enhancing the income generation capacities of women and men farmers in wheat systems. A study of existing literature and field work reveal that gender inequalities in rural Nigeria are attributed to inequitable access to inputs, land, and credit for women despite agriculture being a dominant employer for women in rural areas.

The SARD-SC project employed action research using an extended case study approach in five Nigerian sites (Kadawa and Alkamawa in Kano State and Ringim, Birnin Kudu and Hadejia in Jigawa State) to integrate women beneficiaries into SARD-SC project. As of August 2016, women constitute 23% (n=2500) of wheat-farming microcredit beneficiaries and 4% (n=700) of IP beneficiaries in Kano State and 9% (n=1700) of the beneficiaries in Jigawa IP. The objectives are to increase women's income generation potential and their contributions to food security, while also addressing structural gender inequalities in access to inputs and services (information, training, and microcredit in wheat systems).

Activities in this project are implemented in two ways: the first is in enterprises in which women are leading and acknowledged with a focus on value addition; the second is in enterprises that are usually believed to be led by men despite significant contributions from women with a focus on wheat farming. The case study overcame barriers often cited in development literature as shortcomings in gender and agricultural development. These included the targeting of gender relations, the comprehensive involvement of project team members, and addressing strategic gender needs (particularly limiting gender norms and barriers to accessing credit and inputs).

Three main achievements at the institutional level through the integration of gender into the SARD-SC Wheat Project in Nigeria were realized. The first was to increase awareness of stakeholders on the role of women as producers of wheat and thereby importance of targeting them for production interventions (grain and seed growing). The second was to come up with innovative approaches to value addition, a subject largely marginalized from extension systems programing yet of significance to women. The third achievement involved institutions gaining experience in integrating rural women into their programming.

In addition to gaining the acceptance of male leaders and household members, the experiences of women in value addition, grain production, and micro-credit access, challenged institutional and community gender norms which seldom see women as farmers or as a target for

agricultural extension programs. In particular, women benefitted through an increased ability to generate income (for over 50% of those who participated in the value addition training as well as increased yields and areas planted with wheat); a reduction in workload through the introduction and/or increasing the availability of five main interventions (mechanization (harvester, thresher, planter); pesticide use; use of whole wheat in cooking; oil addition to pasta making; and short wheat varieties); and an increase in decision-making power through leadership strengthening in key meetings and organizations, sustained control over income related to wheat value addition profits, and access to technologies and more informed decision-making in adoption of new agronomic practices and wheat varieties on own farms. Taken together, the project addresses practical and strategic gender gaps to overcome obstacles for women in wheat production and processing.

The project is scaling up this approach through linking up with policy makers and gender-progressive institutions. The number of women beneficiaries is on the rise. For example, in Kano State 2500 women have so far registered in an on-going exercise for accessing inputs and loans. Future interventions will aim at hosting demonstrations on women farms in the three IP sites, improving the participation of women in grain production through access to credit, and involving women in seed production along with assigning women extension agents in each of the three IP sites.

Introduction to the SARD-SC Wheat Project

There is a high demand for wheat-based products in Nigeria, with an annual wheat consumption at 3.8 million tons in 2013/2014. Yet, despite its potential for production for both domestic consumption and export, domestic wheat production is about 70,000 tons in the same year (USDA, 2014). Nigeria has the potential for increasing its production of wheat under both irrigated and rainfed conditions. Several northern states are conducive to wheat production under irrigation, including Borno, Yobe, Bauchi, Jigawa, Gombe, Kano, Katsina, Kebbi, Zamfara and Sokoto states (Figure 1) (Olabanji, 2016). It is estimated that there are 650,000 ha suitable for wheat production in these areas. Rainfed wheat can be grown on the highlands including Mambilla Plateau in Taraba State, Jos Plateau in Plateau State and Obudu in Cross River State (Figure 1) (ibid).

Figure 1 Map of Nigeria showing 36 states.

Agriculture accounts for 60 percent of employment means in the country, comprises the primary source of livelihoods in rural communities, and is a source of employment for 41.5% percent of women (Oseni et al. 2015; the World Bank Group 2016; FAO 2016). Farmers in general lack adequate access to extension advice, quality seeds, and incentives to grow wheat, and farming is further complicated with high input costs, limited access to credit, and inadequate access to markets (ibid).

Women farmers, despite their significant contributions to farming, are further marginalized than men farmers due to reduced access to land, inputs, extension advice, and technology; participation in leadership positions; and income generation opportunities (Bezner Kerr 2011; African Development Bank (AfDB) 2014; 2003; Oseni et al. 2015; FAO 2011; Ekenta et al. 2012).

To address deficits in wheat supply and, in particular, tackle gender inequalities, the Nigerian government has been collaborating with the International Center for Agricultural Research in the Dry Areas (ICARDA), Lake Chad Research Institute (LCRI), and the Institute for Agriculture Research (IAR) on an African Development Bank (AfDB) funded project entitled *Support to Agricultural Research for Development of Strategic Crops in Africa Wheat Project* (hereinafter noted as SARD-SC Wheat). The project aims to implement along with the government and key stakeholders an effective strategy for import substitution and achieving food security while promoting the economic participation of women. The current report presents the case study of integrating gender into the SARD-SC Wheat Project in Nigeria.

The report first outlines the project objectives then moves to an overview of gender and agriculture in Nigeria with a focus on the areas of project intervention, namely the Alkamawa and Kadawa in Kano State and Ringim, Birnin Kudu and Hadejia in Jigawa State (Figure 2). These two areas differ in levels of wheat production as well as technological, socio-economic dynamics, and gender norms. The project's theory of change, methodology, and impacts at the beneficiaries and institutional levels then follow. The report ends with lessons learned and outscaling potential of promising approaches.

Objectives of the SARD-SC Wheat Project

The SARD-SC Wheat project is led by ICARDA and works in partnership with local stakeholders. The project's overall goal is to improve national wheat production and reduce wheat imports in 13 countries: Sudan; Kenya; Eritrea; Ethiopia; Mauritania; Niger; Mali; Nigeria; Sudan; Tanzania; Zambia; Lesotho; and Zimbabwe. It has four main objectives:

- to enhance wheat yield by 25 percent through adoption of improved varieties and production technologies;
- to increase annual household incomes from an average of $360 to $600;
- to reduce wheat imports from 57 percent to less than 40 percent; and
- to reduce post-harvest losses from 30 percent to less than 15 percent.

This case study focuses on gender issues and considerations for the project and how women benefit and simultaneously contribute to achieving these four objectives. The project's premise is that enhancing wheat yield and adoption of improved varieties and technologies can be achieved better through the involvement of women who contribute to wheat production, participate in adoption decisions, and are responsible for wheat value addition and consumption choices. Furthermore, when both men and women have increased income, the target of achieving increases in annual household incomes can be strengthened. Finally, the project considers the importance that women play in reducing post-harvest losses (both in the fields and in storage). The project employs a participatory approach using Innovation Platforms (IPs). These IPs allow both men and women to communicate their needs and priorities, and participate in the development and implementation of the project (ICARDA, 2015).

To explore the potential of three different types of environments, three major wheat producing countries are chosen given their potential of out-scaling and lesson-sharing for other similar countries. These include: Sudan, which has irrigated arid and semiarid areas; Ethiopia, which has rain fed tropical highlands; and Nigeria, which has the warm tropical environment of western Africa. In these countries, the project aims at enhancing the income generation capacities of men and women farmers in wheat systems with a focus on agricultural technologies and innovations generation; agricultural technologies and innovations dissemination; and capacity building.

Methodology of the Case Study

The project employed an extended case study approach (Burawoy 1998) to integrate women beneficiaries into the SARD-SC project. The approach was interactive and adaptive to the varying local contexts and emerging opportunities (Nelson, 1991). The action research dimensions focused on studying how women's income potential could be increased and ways in which to address inequalities in access to inputs and services. It considered context-specific interventions and examined the effects of integrating gender in activities related to farming and value addition in wheat systems of rural Nigeria, documenting what worked well and what were the obstacles faced and how were they surmounted? The research focused on identifying promising practices with out-scaling potential in wheat systems in which the capacities of women to generate income are increased and gender inequalities reduced. The extended case study approach was multi-local and multi-scale, and used for gaining a better

understanding about enhancing the income and food security potential of women in wheat systems.

Evaluating the activities involved mostly qualitative approaches (Bernard 2006). The qualitative evaluation employed questions to understand approaches which worked well in enabling women to benefit from the project and the respective benefits at both the beneficiaries and institutional levels. Interviews and focus groups were then transcribed and analyzed for understanding institutional and local impact. Qualitative interviews and focus groups were conducted (as per Table 3 in the Appendix below) for understanding the type of involvement for different stakeholders, the impact on men and women farmers, institutions, the community, and regions more broadly. Furthermore, activities for 2016-2017 were designed during the assessment both for Kano State and Jigawa State, which is entering the SARD-SC Wheat Project as of 2016.

Literature Review on Gender and Agriculture in Nigeria

Nigeria is divided into six geopolitical zones with implications on the type of farming activities, gender roles and norms. At issue is the Northern Nigerian States of Kano and Jigawa. These areas are all irrigated but differ in services available and level of wheat production. Nationally, the most impoverished and underserved communities can be found in rural areas, home to 52% of the population (95 million people) (FAO, 2016; World Bank 2016). Per the World Bank (2016), rural areas are particularly poor having a 53% incidence of poverty compared to 34% in urban areas. Rural economies are highly dependent on agriculture but complicated by economic crisis and ongoing civil war that has contributed to the regression of the Nigerian agricultural sector and led to widespread poverty (FAO 2016). Poverty incidence is highest for those involved in the agricultural sector: over 80% of the households in the North are engaged in agriculture compared to 50% in the South (Phillip et al. 2009).

In many rural communities of the North, women participate in all aspects of agricultural life, including household and family maintenance, wage labour, trading, and marketing, as well as crop and animal management. The practice of purdah or *kulle* (seclusion of Muslim women) is common in Northern Nigeria (Ndaghu 2013). A secluded Muslim woman is permitted to go out only under a particular necessity and with prior knowledge of her husband. In a study conducted in 2013 in Northern Nigeria, 32.9% of the respondents were in seclusion (Ndaghu 2013). This is done to prevent women from interacting with other men except their husbands

and children. This social and religious practice has negative implications on women's abilities to participate in public life, gain information, technologies, as well as credit. Access to these services and roles are interconnected.

Contrary to the commonly held idea that the household is the smallest unit of agricultural production, smaller production units are usually found within the household. Ndaghu (2013) notes that the practise of seclusion does not hinder the involvement of the women in agriculture as they manage their own farms and hire labour to execute farm activities. However, they must rely upon other members of the household, often the children, to serve as an access to the markets and to sell their products. Many women cultivate their own farms largely independent of their husbands' farms (Bezner Kerr 2011; Cloud 1985; Olawoya 2007). However, men and women farms differ with regards to crops grown, size of land, extent of input use, and scale of production (Olawoye 2014; Farming First 2012). While about 40% of men farmers in Nigeria use fertilizer on their lands, less than 20% of women farmers did so (Farming First 2012).

The gender yield gap in agricultural production in the North is found to be 28% and 32% in the favour of men (Oseni et al. 2015; Peterman et al. 2011). Such gaps are commonly attributed in the literature to systematic discrimination in access to inputs, information, and credit which is tied to evidence of surplus production and land ownership and to limited income-generation options outside agriculture (Bezner Kerr 2011; Doss 2001; Idachaba 2006). Overall, women in Sub-Saharan Africa more broadly account for less than 20% of total landowners (Farming First 2012). Women are often also responsible for providing the food consumed by the household. Women's productive roles particularly in the informal sector and subsistence agriculture have been ignored or undervalued (Imam 1990; Olawoye 2000). This has led to poorly conceived development projects; for example, the services of extension agents and agricultural inputs being targeted at men even though the activities are largely carried out by women.

As a result, "women farmers often lack substantial technical information that might assist them in farming, and their needs, preferences, and concerns are systematically excluded from agricultural research priorities" (Bezner Kerr 2011: 290). Processing activities as well as drudgery reduction technologies are often undermined in agricultural research and extension systems (ibid). Time poverty is a significant barrier for women to increase their production and adoption of labor-intensive technologies (Bezner Kerr 2011; Olawoye 2007, 2015).

Other dimensions for inequality in agricultural support is the limited number of women extension agents as well as limited involvement of women in demonstration plot and on-farm

experimentation (Doss 2001). In 1989, Nigeria's National Council on Agriculture approved the mainstreaming of women's concerns in agricultural extension system by institutionalising the Women-in- Agriculture (WIA) programme under the Agricultural Development Projects (ADP) in every state of the country. This resulted in female extension agents working directly with rural women to provide them with information not only in traditional areas of home economics, but also crop production, processing, animal husbandry, and fisheries. These had a significant positive effect upon the activities of rural women, but it has not been sustained.

Women's limited participation in political power means that they are often marginalized from voicing and realizing their interests (Bezner Kerr 2011). These considerations are important especially at the local level where respective government bodies are responsible for the allocation of resources with negative implications in terms of how these get distributed due to women's lack of representation (FAO 2011; Bezner Kerr 2011).

Theory of Change of SARD-SC Wheat Gender Mainstreaming in Nigeria

It is important to note that the SARD-SC Wheat Project is implemented under the umbrella of broader Nigerian government support in increasing local wheat production by the Federal Ministry of Agriculture and Rural Development. The government is accelerating wheat production through provision of water pumps, credit, and processing equipment with the hope of also increasing security in the North[1] (LCRI 2014). Over the coming five years, the government hopes to expand wheat production from 70,000 to 300,000 ha using an end-to-end value chain approach (ICARDA 2016). Given the broader scale of the wheat interventions in the country which SARD is shaping and the inclusion of processing activities, which is largely undertaken by women, there is potential to re-address policies and programmes to enhance the economic empowerment of women and promote gender equity in activities and decision-making that affects their active participation in wheat production and processing.

Recognizing the significance of addressing the gender gap in agriculture, the AfDB developed an integrative and action-oriented (2014-18) Gender Strategy, which is anchored to their overarching strategy for supporting transformation in Africa (AfDB 2014). The AfDB places specific focus on the inclusion of women in development projects for increasing their participation in decision-making processes and income generation activities. In collaboration

[1] Similar efforts in the late 80s lost momentum due to local mills refusing to absorb the wheat produced locally (LCRI 2014).

with the Nigerian organizations of LCRI and IAR, and in context of AfDB project regulations which stipulate the inclusion of 30 percent of women beneficiaries in projects, SARD-SC project team planned and followed up on the ground to ensure that women along with men are benefitting from SARD-SC Wheat activities.

Women are usually involved in agricultural activities in Nigeria such tasks as land clearing, land-tilling, planting, weeding, fertilizer/manure application to harvesting, food processing, threshing, winnowing, milling, transportation, marketing, as well as the management of livestock. Women face more constraints compared to their male counterparts with less access to land, knowledge, credit, and inputs in agricultural production which reduces their productivity. Women in farming and other agricultural activities have so far received little attention to augment their activities. The SARD-SC Wheat Project, IAR, and LCRI are working towards mainstreaming gender in all agriculture programmes. The project identified gender-related interest in specific activities, provided appropriate farm-technologies, and built the capacity of women in wheat production and processing thereby reducing poverty.

Table 1 Overall activities, number and ratio of women beneficiaries in Nigeria from 2014-16.

Activity	**Location(s)**	**Female Participants***
Value addition over 2 days (training on different recipes for making wheat products with better quality and less time using locally produced wheat)	25 women from Kadawa 25 women from Alkamawa 34 Female Students	84
Seed training	Kadawa	10
Field days during different stages of wheat production, pre-season training[2] and project planning meetings	From both Kadawa and Alkamawa IP sites as well as partner states	About 30% of participants
Providing continuous technical support through Farmer Field Schools) to a Voluntary Group in Kadawa	Kadawa	25
Provision of triple bag storage	Kano State	90 (30% of the bags distributed)

[2] Pre-season training is an overview training of wheat practices and improved varieties in target or partner states with the purpose of training the trainers, such as extension agents and leader farmers, who will spread the information and technologies to other farmers.

Microcredit provision through the Wheat Farmer Association	Kano State	2500** as of August, 2016

* As of August 2016, the Kano IPs sites have a total of 18,300 participants 700 of which are women (4%). The Jigawa IP sites have a total of 20,000 participants 1,700 of which are women (9%).

** About 11,000 farmers have registered with the Wheat Farmer Association by August, 2016 out of which 2500 are women (23%).

The interventions were designed to tackle both women's strategic and practical gender gaps[3] in agricultural production (Moser 1989, Agarwal 1994). The activities aimed at covering the involvement of women in the entire wheat value chain, seed production, grain production, post-harvest activities, and processing. Gender analysis of roles and needs provided a clear understanding of the social and cultural realities in the target communities. By understanding the challenges and opportunities faced by local women and the local culture, the project developed and implemented effective strategies.

Adequate funds were also allocated for each gender activity with clear responsibilities, persons responsible, and approaches (see Appendix, Table 2 for the work plan developed and adapted over the project life cycle) (Parpart 2014). The actors involved in the gender activities included the Country Project Coordinator, IP Facilitators, Country Gender Focal Point, and Gender Specialist at ICARDA. Assigning responsibilities at different levels is an important step for this project to actualize its gender mainstreaming objectives (Parpart 2014). More precisely engaging with opportunities and barriers at multiple levels is key in gender activities as gender issues are contextual, hierarchical, and complex (Agarwal 1994).

The Case Study Locations and Characteristics

In this section, we discuss the characteristics of wheat farming and processing in each of the five sites of Kadawa and Alkamawa in Kano State and Ringim, Birnin Kudu and Hadejia in Jigawa State (all in the North of Nigeria). Data was collected from Kadawa, Alkamawa, and Ringim (Figure 2). Visits took place in Alkamawa and Kadawa to evaluate the interventions carried out

[3] Practical gender are needs of subsistence such as food, health care, water supply etc.). Satisfying these needs does not challenge women's position in labour, political power, or property ownership (Moser 1989, Agarwal 1994). By contrast, strategic gender needs are those needs that would help overcome women's subordination (ibid).

thus far in Table 1 and to design new ones. A visit also took place in Ringim, a site which the project newly aims to cover, to consult women and other stakeholders to identify promising activities for the involvement of women.

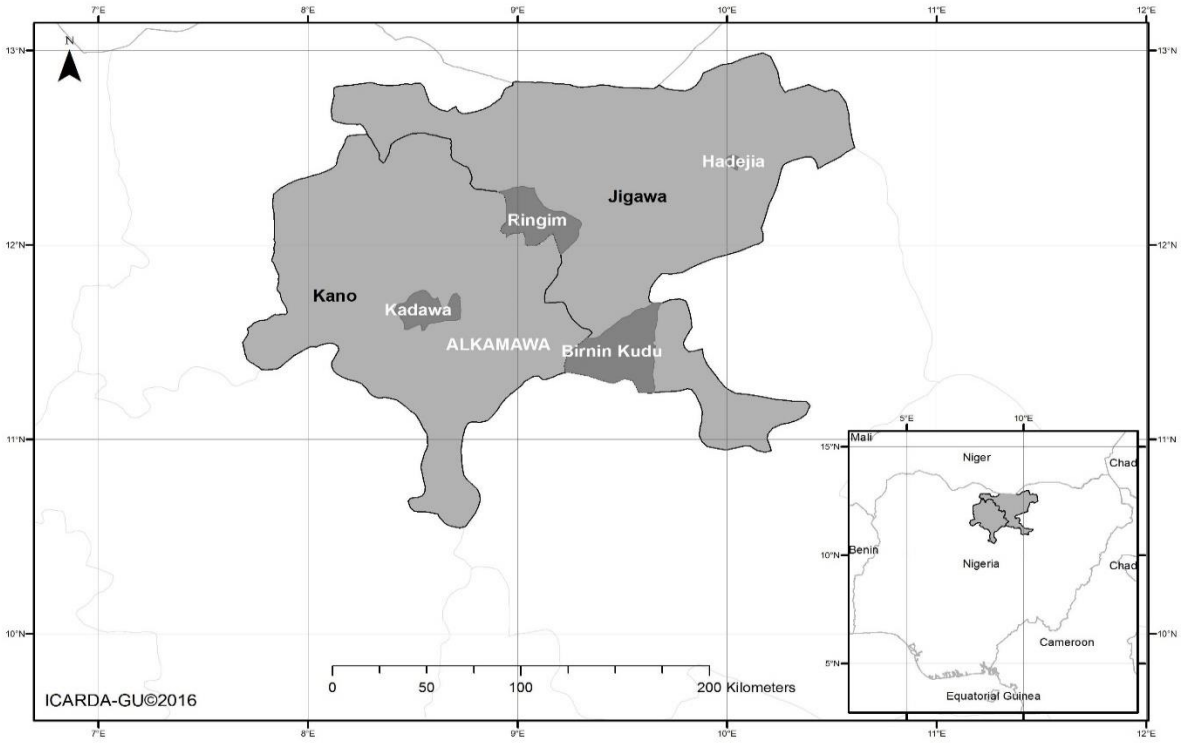

Figure 2 Case study areas in Jigawa and Kano states.

Source: ICARDA GU Unit 2016.

For the most part, agriculture is not mechanized and many expressed desire for mechanizing farming to reduce drudgery and costs. In all three communities, women mentioned that between not less than 40% of women are involved in wheat farming. The prices of wheat have risen in the past few years and this has attracted many to farm. Furthermore, vegetable farming especially tomatoes, a main cash crop for women farmers, has been severely hampered with the infestation of *Tuta Absoluta* pest (see for example BBC 2016 for a similar situation in Kaduna). Often women have their own plots (between one and two acres) which they manage largely independent of their husbands. Only one woman out of the 45 women farmers interviewed explained that she farms along with her husband on the same plot.

The land these women farm is often rented; few also mentioned owning the land through inheritance. In Alkamawa, women renting land only for one season during wheat cultivation, explained that they often have delays in cultivating wheat because the renter before them is late in harvesting the rice crop. In Kadawa, along the same lines, women also explained that they have problems finding planting seeds in a timely fashion during the planting season. They are often obliged to sell all their wheat before the planting season to meet the demands of their households.

In both Ringim and Alkamawa, women also explained that access to water pump is a significant problem in their farming. They often rent a water pump for a high price and share it amongst each other. The lack of women extension agents was also voiced as a concern for women in these communities which practice purdah and cannot work with male agents.

With respect to processing, in all three communities, seven out of ten women on average sell wheat products in the market by sending their children around or by working with specific stores. In Ringim the women mentioned that they have issues with access to value addition equipment which are rented at a high price and not very available. In Alkamawa, women expressed an urgent need for building a road in their community to allow them better access to the market.

Both men and women participate in storage of wheat grain. Sometimes each is responsible for storing their own harvest. Women mentioned having problems with mice and insects during storage of their wheat. They often spray 'pif paf' (a brand pest control spray) on the sides of the storage bags but this does not seem to be working well.

Gender Activities Implemented

Activities in this project are implemented in two ways: the first is in enterprises in which women are leading and acknowledged with a focus on value addition; the second is in enterprises that are usually believed to be led by men despite significant contributions from women with a focus on wheat farming. The premise is that targeting women through traditional enterprises would lead to their direct control over income and is far easier to implement at a larger scale (low hanging fruit). Involving women, on the other hand, in non-traditional enterprises, particularly in wheat production, challenges gender norms and

stereotypes at multiple levels for service providers and local communities (Classen at al. 2008). This has a multiplying effect on other women in the community.

To actualize the workplan in Table 4, three extension agents were asked to recruit in each of the three IPs of Gigawa, Kadawa, and Alkamawa[4] the following: 20 women leaders interested in hosting SARD technologies, 150 women interested in taking financial credit for wheat growing, and 50 women interested in seed production for their inclusion in the SARD-SC project.

Women growing grain or hosting SARD technologies encourage and spread the information to other women in the area. Women farmers reiterate the importance of asking women to both host demonstrations and facilitate farmer field schools as important strategies for increasing and sustaining the involvement of women in SARD-SC Wheat in Nigeria. The project continues to seek the support of male leaders and husbands as it expands the involvement of women in the project.

Through accounting for strategic and basic needs as well as gender relations, the project addresses on-going criticisms related to integrating gender into development projects in different parts of the world which pay limited attention to strategic needs and gender relations (Quisumbing, A. R., & Pandolfelli 2010; Baruah 2005). Kabeer (2010) argues that the timeliness of women's involvement in projects is key to shaping whether and the extent of women's abilities to benefit from interventions. The project systematically integrated women in the design of the interventions (e.g. during field day and planning meetings) and in evaluating these interventions in August and October 2016 (See Table 3).

Indicators examined to determine the success of the interventions are both qualitative and quantitative and include:

- creating an enabling institutional context;
- numbers of women beneficiaries in value addition activities;
- numbers of women beneficiaries in production activities;
- number of interventions/technologies introduced which reduce the workloads of women; and

[4] Alkamawa and Kadawa are each an IP in their own right as these regions historically are one of the largest producers of wheat. *Alkama* is an Arabic term which means *Kamah* or wheat. Alkamawa means the people who grow wheat.

- changes in attitudes and behaviors of men and women at local and institutional levels in favor of increasing women's economic and leadership potential in local wheat systems (e.g., increased income and decision-making power in local agriculture).

Women of different generations, social class, ethnicities, and educational backgrounds in Kano State and beyond were targeted for a 30% participation rate in field days, preseason training, and planning meetings. These events cover wheat farming during all its life stages and involve strategic interactions between men and women farmers as well as key stakeholders. Field days and preseason trainings are community events during which participant farmers exchange experiences of SARD-related interventions (such as cultivating a new wheat variety, application of certain agronomic practices, value addition techniques, and participatory varietal selection) with non-participant farmers. During the events, farmers and other stakeholders, such as the local governor and microcredit institutions, also brainstorm about future interventions.

Women were also targeted for value addition training which aimed to promote local wheat consumption, increase income generation potential of women, and contribute to their food security. Some 84 women (25 from each of Kadawa and Alkamawa and 34 female students) were trained on value addition and packaging.

In addition, approximately 2500 women farmers were provided with wheat seed and inputs over the wheat season of 2016. This was achieved in collaboration with the Wheat Farmer Association which operates in the 12 wheat producing states in Nigeria and appoints a woman leader in each of the 12 divisions who recruits and encourages the participation of women in microcredit provision. About 25 women were targeted in Kadawa for providing them with technical backstopping in wheat production. Some 90 women were also provided in Kano State with triple storage bags to reduce post-harvest losses.

An evaluation conducted during August and October 2016 also led to designing new activities based on the interest of the women beneficiaries as well as ongoing and emerging project activities (such as the thresher and oven purchased by the project). Seed companies' involvement was also strengthened during this year, and women have expressed interest in being involved in seed growing. As of October 2016, Gender Focal Points in each Innovation Platform (IP) Site, particularly women extension agents, are appointed to ensure effective integration of women in SARD-SC activities in context of high female seclusion (purdah system). Threshers as well as oven and value addition equipment are entrusted with two community-based group (one member from each village) for benefit of all community members.

The project took a win-win approach to both achieving income and production increases as well as reducing structural barriers to women's participation in production and income generation activities. The practical needs addressed included provision of information and skills on wheat production. Strategic needs aimed at addressing women's limited access to information, microcredit, and decision-making power in participating in and designing agricultural interventions. Interventions were targeted at both the community and institutional levels to reduce gender gaps in wheat production and processing.

Gender Impacts of the SARD-SC Wheat Project in Nigeria

Key impacts of the case study are described in this section at the institutional and individual beneficiary levels which are interconnected. The institutional context affects or shapes the services provided. On the institutional front, the case study looks at impact achieved with LCRI, IAR, and the Wheat Farmer Association. The purpose of the interventions at this level included establishing an enabling institutional environment which recognizes and involves women as key and important participants in wheat value chain improvements. At the local level the purpose was, similarly, to empower women in their abilities to generate income, contribute to food security in their households and societies more broadly, increase their decision-making power and leadership potential, and reduce their workloads.

Impact at the Institutional Level

Three main achievements at the institutional level were realized. These are:

1. increased awareness of stakeholders on the role of women as producers of wheat and thereby importance of targeting them for production interventions (grain and seed growing);
2. new and innovative approaches to value addition, a subject largely marginalized from extension systems programing yet of significance to women (Bezner Kerr 2011); and
3. involved institutions gaining experience in integrating rural women into their programming.

The project increased the awareness of all actors on meeting the 30% target of integrating women as beneficiaries in the SARD Project. "The SARD-SC project is the only project that is interested in women's empowerment and has involved more women than any other project in this community," explained a male extension agent. Many of the project leaders similarly

explained that the scale of gender integration in SARD-SC, particularly the 30% target of women beneficiaries, is unprecedented in their career.

The gender integration goals were clarified, solidified, and owned by the main local partner institution during a planning workshop in Sudan during March 2015 as well as during an extensive ten day visit in October 2016 with multiple stakeholders (SARD-Project core team, Country Coordinators, Country Gender Focal Points, IP facilitators, and extension agents). The meeting focused on how women could be enabled to achieve the goals of increased production and income generation, who needed to be involved, what evidence would be used, and who would be responsible in the respective activities. Table 2 and Table 4 in the Appendix depict the work plan which was co-produced and owned in the gender workshop by the LCRI and IAR, the primary implementers of the interventions.

Key stakeholders realized key problems that women face and addressed them through project interventions. For example, the Country Coordinator explained, "the threshing and cleaning is too laborious for women. Now we mechanized these activities, and women now can concentrate on production and processing." The stakeholders came up with innovative approaches for women to benefit from the project. Facilitators on the ground explained that to meet the project target of including women, they resolved conflict between women renters and original landowners and convinced these landowners to rent their lands for women. "When I find that a woman is interested in growing wheat, I talk to the leaders, I lobby on her behalf to get land in the community," explained a male facilitator in Kadawa.

Along the same lines of increased gender awareness, the Regional Coordinator explained that cultural barriers are significant obstacles that hinder women from participating in agricultural projects. "Some parts of the country, like the North, women are not allowed to mix freely with men or to go out. We tried to circumvent this barrier through involving husbands and wives to participate in the project. He would not fear that someone is going to come close to his wife." Partners were also sought at the community level to build trust and convince male husbands and leaders in the community that the involvement of women is important for the family. This family-oriented approach is a win-win approach followed by the project in which women benefit economically and politically while also securing broader benefits for families and communities.

The project also resulted in a significant increase in recognizing women as wheat farmers in their own right. The Wheat Farmers Association President explained that they have an annual

'best woman farmer' award to encourage the participation of women. Furthermore, as mentioned earlier, Women Leader positions are held in each of the wheat producing states where the Association has an office. The Women Leader in the Wheat Farmer Association of Kano State explained that she advertises the wheat credit program to women on the radio and during field days, precision trainings, and planning meetings. This resulted in a dramatic increase in women's participation by 20% from last year.

The SARD-SC Wheat Project in Nigeria significantly supports the Wheat Farmer Association, through provision of rented space, seeds, and machinery. The SARD-SC Project Coordinator in Nigeria appointed a women farmer leader in Gombeh state to lead the Wheat Farmer Association there. As mentioned earlier, the involvement of Women Leaders not only sharpens women's leadership skills but more broadly it is essential for women in the community that they have women representatives at this level of governance where resources are allocated and distributed.

The project leadership is also sensitive to negative consequences of project activities. For example, there is a concern that threshing machines introduced for free in the communities to reduce drudgery for the women doing the winnowing would impact the livelihoods of those who are already threshing in the communities for a fee. As such, the project offers small threshers to women groups in the three IP sites who will have committees representing multiple villages managing the thresher. Similarly, while the bigger threshers are given to men, the smaller ones will be given to women to reduce competition between men and women and avoid that men feel threatened. Quisumbing, A. R., & Pandolfelli (2010) note that this approach of being responsive to gender-specific needs is particularly lacking from gender-related and agricultural interventions in many areas in Africa.

Additionally, value addition training is pioneering in its focus on increasing the quality and diversity of wheat-based products in women's households mainly for income-generation purposes. Many women explained that this is the first time they are targeted for such an intervention.

These activities have opened cracks for challenging institutional norms related to a sustained focus on men and very limited involvement of women in agricultural interventions by opening up new ways to involve women in wheat programing including in hosting of technologies, value addition, and production (Classen et al. 2008). Through these interventions, the respective

institutions now have the experience to integrate gender into their programing and as such sustain and reproduce these interventions.

SARD Gender Integration Impact on Beneficiaries

It is through the targeted institutional support mentioned above that interventions were designed and delivered to the beneficiaries. The impacts on the beneficiaries, particularly women farmers, are divided into three main categories: field days and key meetings, value addition, and wheat production. The outcomes for the beneficiaries will be discussed in the following order: impact at the household level, then regional/community level, and finally at the national level.

In determining the impacts of the SARD-SC gender activities, we pay attention to gender relations, women's decision-making power (at the household and community level), level of understanding/acceptance of women's economic and production roles, and level of women's access to factors of production (land, credit, training, and inputs), and workload reduction. As mentioned earlier, women were involved in evaluating project interventions. Table 3 in the Appendix details the number and type of women involved in evaluating the project.

Field Days and Related Meetings

Women's participation in field days, pre-season training, and planning meetings was aimed at achieving a rate of 30 percent. About 30 women in Kadawa, Alkamawa, and Kano city were interviewed about their involvement in these events. They noted benefits such as gaining technical and institutional knowledge (usually only accessible to men); sharpening their leadership skills; and financial gains through participation (namely the per diems), which were used as an incentive for the women to spread the knowledge to others.

All of them were satisfied with the knowledge acquired. They had their own farms and as such reported a yield increase through the adoption of the improved agronomic practices. About one third of the 30 women explained that before the field days, they had not known that there are different varieties of wheat, knowledge that they gained in Participatory Varietal Selection activities. "Now I can tell if a variety is good or not when I see it in the field. I prefer those with a lot of grains, the shorter varieties," explained one participant. "I did not know there were long and short varieties before the field days. Previously, I did not know how to differentiate," explained another. Almost all the participants mentioned learning about 'drill planting' which reduced the number of seeds used in planting and increased yield. Most women also reported learning through these events about the schedule of planting, fertilization rates and schedule,

harvesting schedule to avoid shattering, pesticide use, and disease identification. Some explained that they had not known about pesticide and herbicide use before.

Those who attended the pre-season and planning meetings reported learning about institutional services available to women who are growing wheat, particularly about wheat prices and about the credit available to women through the Wheat Farmer Association. They then transferred this knowledge to other women in the community who took credit from the Wheat Farmer Association. This is in contrast to women who were interviewed but are not yet involved in the project: “We know about the Wheat credit through the Association but we thought it is only available for men and women cannot take it,” explained a woman in a FGD in Ringim. A woman extension agent explained that women are largely marginalized from input support in Nigeria more broadly: “When the fertilizer arrives. It is only men that get the subsidized fertilizer. Not even one woman gets one bag of fertilizer.” This was also reiterated by women farmers in another region which suggests that the realization of woman as farmers in need of support on an equitable basis with men is an important and pioneering impact of the project. Equally important, is that women get the knowledge about the institutional services available for them which is usually “only for men”.

Through the increased cultivation of wheat to which SARD-SC has also contributed, more job opportunities are created for women, especially in winnowing. During field days and related events, women are often hired for performing winnowing, which some women have credited as a positive aspect of the project (See Figure 3).

Figure 3 Women winnowing during field days.

The field days also sharpened women's leadership skills by speaking in public and addressing high level officials (See Figure 4). The Women Leader interviewed explained that she represents the interests of women in these meetings. She narrated that during one of these meetings she asked the Governor of Kano for land for women and youth. He provided an acre of land for each of 70 women farmers in the region.

Figure 4 Woman Leader of Kano Wheat Farming Association addressing the local Governor of Kano during a SARD-SC field day in Alkamawa IP

Many who attended the preseason training and planning meetings reported benefitting from the per diems obtained (between 200 and 300 USD). A woman farmer reported purchasing a goat with the per diem. The preseason training and planning meetings also offered opportunities for women to be visible and heard in key decision-making processes (Figure 5). It is important that women are an active part of the Wheat Farmer Association to ensure women's interest in wheat farming and processing are addressed.

Figure 5 Women attending planning meeting to the right and a preseason training to the left at an approximate rate of 30%.

Value Addition

Some 84 women from Alkamawa and Kadawa IPs as well as students were trained in value addition over two days. About 50 were interviewed and they were appreciative of information and techniques that they got through the training which increased their income, improved the quality and diversity of the wheat products as well as reduced their drudgery and post-harvest losses. The value addition training involved seven women trainers on making the following 11 products (See Figure 6 and Figure 7):

- *Alkaki* – traditional sweet pastry
- *Punkaso* – traditional whole wheat flour pancake
- *Dashishi* – traditional wheat couscous
- *Alkubus* – traditional whole wheat steamed savory cake
- *Taliya* – whole-wheat spaghetti
- *Gudun Kurna*– wheat flour dumplings with tomato sauce or vegetable
- *Wheat porridge* – referred to locally as Quaker Oats
- *Tayota*– fried sweet pastry
- Cakes

- Doughnut
- *Greva* – traditional Arabian pastry
- *Chin-chin* – fried sweet dough
- *Puff-puff* – fried local doughnut

Figure 6 Exhibit for selling value added product in SARD-SC Field day in Alkamawa.

More than half of the respondents reported an increase of 100-500 Nira per day in their wheat by-product sales. Adding eggs to many of the products increased their palatability and demand. Adding oil to the Talia was also reported to increase its palatability. This also reduced the effort needed in preparing Talia due to a 'softer dough'. Some of the new recipes also contributed to increased sales and income. The use of yeast and baking powder was particularly praised for improving the quality of the dough as well as increasing the amount, which also generated income. Almost all the respondents reported learning about new recipes such as doughnuts *gudun kurna*, and *dashishi.*

Preparing *dashishi* and other products by using whole wheat, many women reported, reduced the time required in making the paste as well as post-harvest losses due to the lengthy process of dehulling, washing and grinding while also increasing the nutritive value of the products.

Figure 7 Value addition training. Making of Talia pasta using pasta machine to the left and Punkasu to the right.

Many women explained that they had trained their daughters, co-wives, daughters-in-law, neighbors, and friends on the new recipes, products, and approaches for baking using local wheat. The women participants were also sensitized on the need to consume locally produced wheat rather than commercial wheat.

The trainings raised their self-confidence and faith in their entrepreneurial abilities. Almost all women participants in the focus group mentioned controlling the income from the resulting sales. They used this income mainly for repaying the loan, investing in household items, or providing their children with extra income.

Wheat Production

About 25 women in Kadawa received planting seeds from the SARD-SC project. They praised the 'short variety' for being easier to harvest, more responsive to fertilizer application, and higher yielding. The women largely benefitted from leader women attending preseason training and planning meeting for they learned about the credit available to wheat growers through them. About one third of 15 women in a focus group in Kadawa reported increasing the area of wheat that they were planning through their access to credit. Four women explained that their yield increased from 17-18 bags of produce to 20-25 bags on the same area of land through planting of improved varieties.

One woman leader farmer, explained that through her involvement in the project she is now able to send her children to a private school as well as gained recognition and appreciation for her wheat farming in the community.

> **"**I am Hadejia[5] a wheat farmer since before the project and benefited through the knowledge I got from the training which I applied on my farm. It has improved my farming practices and has made me feel important. After the training exercise, I used the transport fare given to us to buy a goat and now I have three young goats from that. Initially I had 1ha of land but have expanded to 3ha of land which I obtained with the income from the project. I have generated more income than I used to before the project which I used to help my family with their needs, send my children to school and also my needs. My husband is also a farmer and have been my support for the project and my wheat farming because he encouraged me and I have been progressing all through...The leaders, extension agent, other men are proud of me and my achievements as a woman who can be a grain grower and come up with such progress."

Two other groups of women of 35 members each have formed and plan to join the SARD-SC project in growing wheat. As one leader of the two groups explained, "Most women do not have access to credit facilities. When they get it, and see it works it encourages women. Really this project will help them with inputs and this will increase the participation of women."

Women showed great interest in mechanization of their farming, related to planting, harvesting, and threshing. The project albeit at a small scale is exactly doing that. Seed cleaners, threshers, harvesters, and planters are introduced by the project (See Figure 8).

To further increase the profitability and visibility of women as wheat farmers in the community and institutions more broadly, the project will involve women in demonstrating higher yielding Norman and Atila varieties in 2017, and involve women in seed growing also, an activity largely dominated by men (See Table 4).

[5] Named changed for confidentiality.

Figure 8 Mechanization introduction of thresher (left) and planter (right).

Lessons Learned and Recommendations for Out-scaling Potential

This case study from Nigeria outlined specific examples of how agricultural research can address gender inequalities in access to information, inputs, credit, and decision-making power in Nigeria. Findings reveal that involving women leaders in key meetings led to other women benefitting in the targeted communities. Involving women, through gaining trust and approval of male kin, in grain production and credit access elevated the position of women as leaders in the communities and institutional bodies alike.

Women benefitted through

1. an increased ability to generate income (for over 50% of those who participated in the value addition training as well as increased yields and areas planted with wheat);
2. a reduction in workload through the introduction and/or increasing the availability of 5 main interventions (mechanization (harvester, thresher, planter); pesticide use; use of whole wheat in cooking; oil addition to pasta making; short wheat varieties); and
3. an increase in decision-making power through leadership strengthening in key meetings and organizations; sustained control over income related to wheat value addition profits, and; access to technologies and more informed decision-making in adoption of new agronomic practices and wheat varieties on own farms.

Both the interventions themselves and the approach for engaging with local beneficiaries and institutions offers valuable out scaling potential by addressing gender inequalities in decision-making power and access to resources (land, information, credit, inputs) all in context of poverty alleviation and increasing national self-sufficiency in wheat production. The

interventions take a multi-relational approach which is essential to resolving gendered obstacles in agricultural production which are hierarchical and complex. It is thus recommended that this multi-scale and multi-sectoral approach is replicated to other areas in Nigeria and AFDB projects. AFDB's gender strategy which focuses on both instrumental gains and addressing gender inequalities meshes well with this integrative approach.

To strengthen these improvements in participation and institutional and local capacity building in overcoming gender inequalities in wheat production and processing, the following is recommended for the season of 2016 and 2017 in SARD-SC Wheat Project activities in Nigeria based also on consultation with the women beneficiaries and other key stakeholders. Specific research questions are also outlined.

Monitor the progress of women farmers through involving them in the annual survey by also following the minimum standards for collecting sex disaggregated data (Doss and Kieran 2014). Questions aimed at understanding who in the household instead of focusing only on the head of households are to be incorporated in order to understand how both men and women participated and benefitted from the project. Women enumerators should also be hired and trained to carry out the survey.

Consider the progress of women farmers relative to male beneficiaries of this program, particularly in meeting the objective of increasing domestic wheat production. How will this program move beyond small scale activities focused on women's farming as well as small numbers of women's participation, to gradual increases in numbers and support comparable to male counterparts? What access to land and resources is possible for this scale? Who can support and leverage this increase?

Further review the ways which male counterparts perceive the role of women in enterprises with mixed membership but controlled by men. To what extent has this project over a longer period, led to a shift in mindsets concerning the importance of the engagement of women farmers in development activities? How has this been reinforced at the local and national policy levels over time?

Appoint Gender Focal Points (women extension agents) at the IP level to overcome cultural barriers for women's participation. These focal points may require capacity building in SARD-SC Wheat Project technologies. To what extent can these focal points build alliances with male extension agents to increase gender analysis and sensitivities and reduce perceptions of women's unsuitability for agricultural leadership?

Involve women in demonstration sites of wheat technologies (see Table 4 for more details). As noted above, consider how women are benefitting from demonstrations largely being made available to men. What specific factors lead to the increase of women's involvement in wheat and value addition technological innovations?

More focus is required on value addition interventions, in particular technologies which reduce women workload, post-harvest losses, and improve product quality. What technologies are promising in reducing women's workload and post-harvest losses and in improving product quality? What are the appropriate approaches for their dissemination?

Increase the participation of women significantly in grain and seed production through facilitating their involvement in the Wheat Farmer Association and linking them up with seed companies (see Table 4 for more details). Given the initial indication of interest by women farmers, what are the outcomes of a dedicated focus on women's grain and seed production? What are the unique characteristics of women's engagement in these activities, as compared to their male counterparts?

Increase linkages between IP sites for strengthening the potential of in-country out-scaling. It is important to determine the successes in individual IP sites and examine the replication potential in other IP sites and projects in the country, for example, by fostering interactions between women leaders from each IP site to share best practices. What are promising successes in each of the IP sites? What are possible approaches for out-scaling these successes to other IP sites and other projects in the country?

Carry out exchange visits between women SARD-SC participants in Kadawa and other women farmers who are newly involved in the project to show them that it is possible for women to become leaders in wheat farming and more broadly in their communities. Consider ways in which the project can measure the degree to which skills and knowledge are transferred and leading to a cumulative impact in and around the current IP sites.

Continue to enhance and improve reporting of impact using sex-disaggregated data in the entire project. For example, review current monitoring and evaluation measurement tools and indicators for the project to consider where there are knowledge gaps (e.g., the number of women and men participants in training activities, their land sizes and martial status). Ensure consistent distinguishable participation numbers for men and women farmers attending project activities.

References

African Development Bank. (2003). Republic of Nigeria: FADAMA Development Project: Appraisal Report, Agriculture and Rural Development Department Central West Region, AfDB, Tunisia.

African Development Bank Group. (2016). 50 Million African Women Speak Networking Platform: Multinational Project Appraisal Report, OITC Department, AFDB

African Development Bank Group. (2013). Agricultural Transformation Agenda Support Program - Phase 1 (ATASP-1): Federal Republic of Nigeria: Appraisal Report: OSAN Department, AfDB.

African Development Bank Group. (2014). Gender equality at the heart of Africa's transformation: a vision and a strategy- African Development Bank. Retrieved August 19, 2016 from http://www.afdb.org/en/news-and-events/article/gender-equality-at-the-heart-of-africas-transformation-a-vision-and-a-strategy-12761/

Baruah, B. (2005). Gender and development in South Asia: can practice keep up with theory? *Canadian Journal of Development Studies, 26*, 677-688.

BBC News. (2016). Nigeria's Kaduna state declares 'tomato emergency'. Retrieved August 19, 2016 from http://www.bbc.com/news/world-africa-36369015.

Bernard, H. R. (2006). Research Methods in Anthropology: Qualitative and Quantitative Approaches. Oxford: Altamira Press.

Bezner Kerr, R. (2011). "Gender and agrarian inequality at the local scale." *Agricultural systems: Agroecology and rural innovation for development*. Burlington, MA: Academic Press.

Burawoy, M. (1998). "The extended case method." *Sociological theory* 16, no. 1: 4-33.

Classen, L., Humphries, S., FitzSimons, J., Kaaria, S., Jiménez, J., Sierra, F., & Gallardo, O. (2008). Opening participatory spaces for the most marginal: learning from collective action in the Honduran hillsides. *World Development*, *36*(11), 2402-2420.

Cloud, K. (1985). "Women's productivity in agricultural systems: Considerations in Development Projects" in Gender Roles in Development Projects: A Case Book by Overholtet al. (eds.) Conn., Kumarina Press

Doss, C. R. (2001). Designing agricultural technology for African women farmers: Lessons from 25 years of experience. World development, 29(12), 2075-2092.

Doss, C., & Kieran, C. (2014). Standards for Collecting Sex-Disaggregated Data for Gender Analysis; a Guide for CGIAR Researchers.

Ekenta, Cornelius M.; Mohammed, Aderonke B. and Afolabi, Kayode O. (2012). Gender analysis of land ownership structures and agricultural production in Imo State, Nigeria Journal of Economics and Sustainable Development Vol. 3 (9): 67-73.

FAO. (2016). Nigeria at a glance. Retrieved from http://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/.

Farming First. (2012). *The female face of farming*. Retrieved from http://www.farmingfirst.org/wordpress/wp-content/uploads/2012/03/Farming-First-Female-Face-of-Farming_Brochure.pdf

Food and Agriculture Organization of the United Nations. (2011). *The State of Food and Agriculture 2010- 11: Women in Agriculture- Closing the gender gap for development*. Retrieved June 28, 2016 from FAO website: http://www.fao.org/docrep/013/i2050e/i2050e.pdf

Idachaba, F.S. (2006). Good Intentions are not Enough: Collected Essays on Government and Nigerian Agriculture. Volume I: The Agricultural Policy Process University Press PLC, Ibadan.

International Center for Agricultural Research in the Dry Areas. (2015). Addressing the gender deficit in wheat production | Dryland Systems. Retrieved June 18th, 2016 from http://drylandsystems.cgiar.org/content/addressing-gender-deficit-wheat-production

International Center for Agricultural Research in the Dry Areas. (2016). Improved wheat production and productivity in Nigeria. Retrieved from www.icarda.org/blog/%5Bnode%3Ablog%20type%5Dimproved-wheat-production-and-productivity-solution-nigerian-import-dependence.

Imam, A.M. (1990). "Gender Analysis and African Social Sciences in the 1990s" Africa Development 15 (3-4): 1-17.

Jones, E., Smith, S., & Wills, C. (2012). Women producers and the benefits of collective forms of enterprise. Gender & Development, 20(1), 13-32.

Kabeer, N. (2010). Women's empowerment, development interventions and the management of information flows. *IDS Bulletin*, *41*(6), 105-113.

Lake Chad Research Institute (LCRI). (2014). Nigeria has broken the wheat jinx. Retrieved from www.lcrimaid.gov.ng/index.php/78-featuring/137-nigeria-has-broken-the-wheat-jinx-agric-minister.

Moser, C,. (1989). Gender planning in the third world: meeting practical and strategic needs. *World Development*, 17(11), 1799-1825.

Ndaghu, Augustine. (2013). Use of ICTs among Women Farmers in North East Nigeria: Socioeconomic Characteristics, Benefits and Constraints, Sociocultural Factors, Attitudes and Preferences Lambert Academic Publishing, Saarbrucken, Germany.

Nelson, J. G. (1991). Research in human ecology and planning: An interactive, adaptive approach. *Canadian Geographer, 2*(35), 114-127.

Olabanji, O. G. (2016). "Nigeria has what it takes to produce wheat" The Guardian Newspaper, Thursday, 15 September.

Olawoye, Janice E. (2000). Contemporary Research Interests and Problem Areas in Agricultural Extension and Rural Development The Ibadan Extension Monograph Series No. 2 Department of Agricultural Extension and Rural Development, Ibadan, Nigeria

Olawoye, Janice E. (2007). FEWS-NET: Household Livelihoods Framework as Conceptual Framework for Food Security Analysis for Northern Nigeria. Report for The Food Economy Group, LLC, Pittsburgh, PA., U.S.A.

Olawoye, Janice E. (2014). Ileogbo Town and The University of Ibadan: A Case Study of Community / University Collaborative Development Ibadan, Bukshi Prints and Publishing (104pp).

Olawoye, Janice E. (2015). Gender Training Workshop Manual for Staff and Partners of IITA Cassava Weed Management Project for Workshop held 21-22 October, 2015, at National Root Crops Research Institute, Umudike, Abia State.

Oseni, G., Corral, P., Goldstein, M., & Winters, P. (2015). Explaining gender differentials in agricultural production in Nigeria. Agricultural Economics, 46(3), 285-310.

Parpart, J. L. (2014). Exploring the transformative potential of gender mainstreaming in international development institutions. *Journal of International Development*, *26*(3), 382-395.

Peterman, A., Quisumbing, A., Behrman, J., and Nkonya, E. (2011). Understanding the complexities surrounding gender differences in agricultural productivity in Nigeria and Uganda. J. Dev. Stud. 47(10), 1482–1509.

Phillip, D., Nkonya, E., Pender, J., Oni, O., (2009). Constraints to increasing agricultural productivity in Nigeria: A review. NSSP Background Paper 6, International Food Policy Research Institute. Washington, DC.

The World Bank Group. (2016). *Nigeria | Data*. Retrieved August 12, 2016 from http://data.worldbank.org/country/nigeria?view=chart

United States Department of Agriculture (USDA). (2014). Nigeria: Grain and Feed Annual Report 2014, USDA Foreign Agricultural Service, Lagos.

Appendix

Table 2 List of activities and the respective objectives, approaches, stakeholders involved, location and indicators for 2014-2015.

SARD-SC activities	**What do you want to achieve**	**How it will be achieved**	**Who should be involved**	**Who is responsible**	**Obstacles you for see and how will you surmount it**	**Location**	**Indicators (sex disaggregated)**
Technology generation (adapting technologies to the local context of Nigeria)	-Women voices and preferences included in -PVS processes At least 30 percent of participants are women	-Hiring women extension agents -Do the PVS during suitable time for women	-Breeders -IP facilitator -Women extension agents	-Country coordinator (budget, power to actualize) -Gender Focal person (expertise)	Recruit women to participate which have a busy schedule by getting buy in and support from their husbands and male leaders	-Kadawa IP -Alkamawa IP	-Collect sex-disaggregated data -Women preferences are delivered to the breeders
Capacity building	Training of female household members in food processing	Conduct a training for women in food processing for income generation and/or increased contribution to food security	-IP facilitator -Food processing specialists	-Country coordinator (budget, power to actualize) -Gender Focal Point (expertise)	Determine a place and time for this training	-Kadawa IP -Alkamawa IP	-100 percent of beneficiaries in training are women -Timing of training relevant to women - Benefits of training on food variability and heath
Capacity building	Increase HH income	Involvement of microfinance institutions and seed companies to support agric-small enterprises	-IP facilitator -Seed companies -Microfinance	-Country coordinator (budget, power to actualize) -Gender focal Point (expertise)	To identify market needs and bringing women and funding institutes in one place	-Kadawa IP -Alkamawa IP	-Number of women involved in business - percent of inc. in HH income.

Capacity building	Raising awareness of project staff on gender integration	Meetings to enhance knowledge on gender issues as roles, needs, collecting disaggregated data, ….		-Country coordinator (budget, power to actualize) -Gender Focal Point (expertise)		-Kadawa IP -Akamawa IP	-50 percent of SARD team sensitized on gender issues. -50 percent of SARD colleagues include gender in their interventions

Table 3 Type of stakeholders and type of interactions employed for data collection in August and October 2016.

Location	Stakeholder	Number	Type of Interaction
SARD – SC LEADERSHIP	National Coordinator (Dr. Oluwasina Gbenga Olabanji)	1	Interview
SARD – SC LEADERSHIP	Regional Coordinator (Prof. Ibrahim Umar Abubakar)	1	2 Interviews
SARD – SC LEADERSHIP	Fieldwork Coordinator (Dr. Zakari Turaki)	1	2 Interviews
Kano City	Woman Leader at the Wheat Farmer Association for Kano State	1	2 Interviews
Kano City	Chairman at the Wheat Farmer Association for Kano State	1	2 Interviews
Kano City	Chairman at the Wheat Farmer Association at the national level	1	1 Interview
Alkamawa	Women beneficiaries in value addition	25	3 Focus groups
Alkamawa	Women wheat farmers including those who attended field days	6	1 Focus group
Alkamawa	Woman trainee in seed production	1	1 Interview
Alkamawa	Male extension agents	2	3 Interviews
Alkamawa	Male farmer leader	2	2 Interviews
Ringim	Women wheat farmers	15	1 Focus group
Ringim	Entrepreneurial women involved in value addition	15	1 Focus group
Ringim	Woman extension agent	1	1 Interview
Ringim	Woman Leader at the Wheat Farmer Association for Gigawa State	1	1 Interview

Kadawa	Women wheat farmer beneficiaries	25	2 Focus group
Kadawa	Women wheat farmer beneficiaries	3 Women case studies	5 Interviews
Kadawa	Women beneficiaries in value addition	25	2 Focus group
Kadawa	Women who attended field days	xx	1 Focus group
Kadawa	Husbands of participant women	2	2 Interviews
Kadawa	Male extension agents	1	2 Interviews
Gombeh	Chairwoman of Wheat Farmer Association in Gombeh		1 Interview

Table 4 Planned activities and the respective objectives, approaches, stakeholders involved, location and indicators for 2016-2017.

Activity	Approach	Target/Deliverable	Person(s) Responsible	Timeline (2016-2017)
Assign gender focal person/Extension Agents in each IP	Train the women extension agents to follow up with demonstration sites on women farms and information provision on the lifecycle of wheat growing for women (field days, FFS) Train the women extension agents to follow up on training of women on using the thresher machine and overseeing of the thresher machine Train the women extension agents to raise awareness of women farmers on credit (for value addition and farming) and extension support available to them Train the women extension agents to follow up on the training of women on using the oven and value addition machines and overseeing of value addition machines	1 woman extension agent should be appointed in each IP to follow up on production and value addition The women extension agents should be trained on SARD and wheat technologies in order to work effectively with the women	KNARDA representatives, Country Gender Focal Point, Women Leader in Ringim Local Government	October
Value addition	Train entrepreneurial women farmers in Kadawa, Alkamawa, and Gombe IP on value addition The training is also to include overcoming marketing problems, microcredit options, marketing options, and making a business plan Gain acceptance and support of husbands and male leaders.	30 women in each of 1-Kadawa, 2-Alkamawa and 3-Jigawa IP (10 women from each of Ringim, Hadejia, Birnin-Kudu) (total 90 women)	Country Gender Focal Point, Nutrition Specialist, IP Facilitator, Women Extension Agents	November-December
Training on oven and value addition equipment (pasta machine, flour mixers)	Form a committee for each oven (3) of ten leader women (1 or two from each of village depending on the number of villages) to manage the use of the income-generation oven and other equipment for a nominal fee to cover the electricity expenses and the maintenance costs. Gain acceptance and support of husbands and male leaders.	Done concurrently with the value addition training	Country Gender Focal Point, Nutrition Specialist, IP Facilitator, Women Extension Agents,	November-December
Hosting demonstrations to popularize Norman and Reyna 28 (check against Atilla)	Identify 20 women leaders growing wheat and interested in hosting technologies in the three IPs (Kadawa, Alkamawa and Jigawa) Assign a woman extension agent to follow up with the training (especially that some women farmers might	20 out of the 50 demonstrations per IP are given to women in each of Alkamawa, Kadawa and Jigawa IP (7 women from each	Country Gender Point, IP Facilitator, Women Extension Agents	November

	be growing wheat for the first time) and host FFS and field days on women farms for other women to learn Gain acceptance and support of husbands and male leaders.	of Ringim, Hedejia and Birmin-Kudu) 5x 10=50 m2 (5 kgs of seeds)		
Thresher training	Form a committee for each thresher (3) of ten leader women (1 or two from each of village depending on the number of villages) to manage the use of the thresher for a nominal fee cover the fuel expenses and the maintenance of the threshers Gain acceptance and support of husbands and male leaders.	Train 30 women in each of the three communities receiving the thresher	Country Gender Focal Point, IP Facilitator, Woman Extension Agents	January-February
Seed production	Register interested women as out growers to seed companies Women extension agents to follow up and host FFS and field days on women seed grower farms Gain acceptance and support of husbands and male leaders.	50 women seed growers per each of the 3 IPs	Seed companies (Maina, Green Spore seed Company, and Arziki Seed Company), Country Gender Focal Point, LCRI Seed officer, Women Extension Agents	October
Credit provision through the Wheat Farmer Association	Assist interested women in taking credit with the Wheat Farmer Association through the Women Leaders Involve these women in all extension trainings (invite them to FFS and other extension activities) Gain acceptance and support of husbands and male leaders.	150 women in each IP	Country Gender Coordinator, IP Facilitators, Women Leaders in the Wheat Farmer Association	October