

# GENDER TECHNOLOGY ASSESSMENT

## Appropriate Scale Mechanization Consortium

### BURKINA FASO: PLANTER TECHNOLOGY

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April 2019

*The USAID funded Appropriate Scale Mechanization Consortium led by the University of Illinois at Urbana-Champaign develops and promotes appropriate agricultural mechanization technologies for smallholder farmers in Cambodia, Bangladesh, Burkina Faso, and Ethiopia. ASMC's 'eco-system of innovation' approach includes the development of local Innovation Hubs comprised of relevant stakeholders to promote and enhance suitable, sustainable, and scalable mechanization. In Burkina Faso, key implementers are Michigan State University, Tillers International, and the Institute for Rural Development at Nazi Boni University (formally Université Polytechnique de Bobo-Dioulasso) in Bobo-Dioulasso.*

#### SUMMARY

Agricultural technologies can improve economic productivity and reduce time spent on agricultural production, processing, and transporting. Men and women have similar propensities to use technologies. However; women are less likely to have access to them compared to men. Ensuring women have better access to agricultural technology, inputs, and information can help lessen the gender gap in agricultural productivity and increase agricultural output globally by 2.5-4% (FAO 2011). The Appropriate Scale Mechanization Consortium (ASMC) project conducted a Gender Technology Assessment of ASMC's planter to identify gender barriers and enablers to adoption of agricultural technologies, understand intra-household gender norms and women's roles in household technology adoption, and identify strategies for better design, dissemination, and adoption of the planter.

#### Findings:

- Women do not have access to oxen (ownership & control) needed for draft animal power to operate planter.
- Planting is predominantly performed by women in the region; however, a strong social perception exists that men will use the mechanized tools.
- Women play a critical role in the household's adoption of technologies, especially in introducing new technologies promoted by Unions.

#### Recommendations:

- Test planter's efficiency in using donkey animal draft power which is more accessible by women farmers.
- Connect Unions with planter technology. Provide demo equipment for testing, promotion, and training.
- Connect men and women to Unions to access financing for purchasing tools.
- Conduct appropriate training for women farmers that capitalizes on their roles in crop production.

## BURKINA FASO COUNTRY PROFILE

Burkina Faso ranks 183 on the Human Development Index<sup>1</sup>, with 67% of the working population making less than \$3.10 a day (UNDP 2018). Ninety percent of the poor tend to live in rural areas. In Burkina Faso, a poor person is most likely to be employed on a farm, to have had little or no formal education, and to have at least six children. Women-headed households are statistically more likely to be poor than male-headed households, even accounting for other factors, such as education levels (World Bank 2017). Members of poor households remain almost completely excluded from many basic services and access to infrastructure.

Over the past ten years, the poverty rate in Burkina Faso has declined with a rapid GDP growth rate of 6.7%. There have been increased income generation opportunities due to the improved performance of the agricultural sector, especially the cotton sector, and to the urbanization process. The opening of new industrial mines, coupled with a slight rebound in gold and cotton prices and rising grain production, paved the way for an acceleration of economic growth in 2016 (World Bank 2018). Predominant crops are cereals (sorghum, maize, and millet), cash crops (cotton, groundnut, cowpea, and sugarcane), tubers, vegetables, and fruits (FAO 2011). With over 80 percent of the labor force in the agriculture sector, increasing average income of rural households by creating opportunities for households to sell more at better prices is a tangible poverty reduction strategy.

### **Agricultural Mechanization**

The access and use of agricultural mechanization play a critical role in increasing farm productivity. In Burkina Faso, agricultural mechanization increased by more than three percent per year from 2005 to 2014, while agricultural output grew by three percent per year during the same period (IFPRI 2018).

The level of on-farm mechanization is low in Burkina Faso. Seventy percent of smallholder farmers rely on hand labor. Less than 30 percent use draft animal power, and only about two percent use tractor power. Only about one percent of farmers use mechanized power units, and in many cases, they are used solely for plowing while the other labor-intensive work of seeding, weeding, crop care, and harvest is being done by hand. Furthermore, labor is increasingly scarce, yet many farmers are neither aware of alternative cropping methods nor have affordable access to labor-saving mechanization. Because the level of mechanization is low, the level of mechanical skills for equipment fabrication, repair and maintenance are also low.

A major challenge in adopting agricultural mechanization is highly prohibitive costs. Farmers tend to lack access to credit. In addition, it is hard to find adequate and affordable machinery. These challenges can be overcome by the joint use of machinery for agricultural tasks such as soil preparation or cultivation. This is possible through farmer organizations or structured cooperatives. The French cooperative system of *Coopérative d'utilisation de matériel agricole (CUMA)* for the purchase and use of agricultural machinery was replicated in Burkina Faso in 2004; and by 2006, 40 percent of the farmers were mechanized with draught animals (Zhou 2016).

The government of Burkina Faso has made several strong commitments to continue the enhancement of agricultural mechanization. The Ministry of Agriculture and Hydraulic Facilities leads agricultural mechanization in terms of program design and implementation. The mechanization division, General

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<sup>1</sup> There is a growing acceptance of the fact that monetary measures, such as GDP per capita, are inadequate proxies of development. The first Human Development Report introduced the Human Development Index (HDI) as a measure of achievement in the basic dimensions of human development across countries.

Directorate of Plant Productions, aims to elaborate and coordinate the implementation of agricultural mechanization policy. Furthermore, the Agricultural Equipment Maintenance and Repair Service under the Ministry of Agriculture provides maintenance and repair workshops for owners of agricultural equipment, such as tractors and motor pumps. These workshops also train beneficiaries of government extension services to use agricultural equipment efficiently. Education and training on the use of agricultural machinery are also offered through the Matourkou Polyvalent Learning Center, an agriculture college that is part of the Ministry of Agriculture. The government of Burkina Faso has also subsidized agricultural equipment at rates ranging from 50 to 90 percent through several programs, including the Agricultural Mechanization and Hydraulic Sector Support Development Project (implemented by SONATER) and the Program for Strengthening Agricultural Mechanization (Malabo Montpellier Panel). These programs have equipped producers with locally made plows, tractors, seeders, motor pumps, corn shellers, etc.

The government has also invested in the mechanization of agricultural processing, including the construction of processing facilities for shea products, milk products, and cassava. These investments in processing have paid particular attention to providing opportunities for women and youths.

## **Gender**

The World Bank estimates that women account for more than half of the labor force in rural areas, and produce over two-thirds of the food consumed in Burkina Faso. Furthermore, about 95 percent of women in rural areas practice subsistence farming using very basic techniques and non-mechanized instruments. Farm and household work are divided according to gender: women spend up to 16 hours a day on domestic work, including the supply of vegetables, the harvesting of food crops and the preparation of food for daily meals, while instead men focus on the economic administration of the household (FAO 2011).

Women in the agricultural sectors suffer from persistent bias and discrimination, notably in terms of access to land and property tenure. Inheritance is still the main mode of access to land within local communities. Current local practices include the transfer of inheritance from father to son. Women and young people do not have control over land management (in the sense that land can be taken away at any time). Women without direct land rights have access through husbands and male parent. Every married man has an obligation to give his wife a parcel of land for her own farming activities. In this regard, women have control over the products they grow in their fields - even if these crops are to be used to meet the subsistence needs of the household - and some of the products they grow in the fields belonging to their husbands. In individual provinces, traditionally, young wives have to work in their husbands' fields in addition to the work they do in their own fields. The scope of the above-mentioned obligation varies according to certain population groups. Women are released from these obligations at the age of 45 when their children are old enough to bring their own labor force. Although the land reorganization law sets out the equality of men and women concerning land rights, regardless of marital status, in practice married women have significant benefits and their access to land is more protected compared to divorced women or widows (FAO Gender and Land Rights Database).

In order for Burkina Faso to move towards the achievement of the twin goals of reducing poverty and increasing shared prosperity, one of the three major priorities highlighted in the country diagnostic is the priority to reduce the gender bias against women. Unleashing the potential of women's businesses, including those participating in the agricultural sector, and implementing a well-functioning family planning system could create the demographic dividend that Burkina Faso requires to achieve its goals of creating

a greater number of productive employment opportunities and improving the socio-economic conditions of a large proportion of its population (World Bank 2017).

## TECHNOLOGY DESIGN AND DISSEMINATION

In early 2016 the ASMC consortium conducted a stakeholder needs assessment in the country to determine what agricultural tasks constituted the most significant needs for mechanization. During this assessment conducted with government level representatives and NGO's - land preparation, planting, weed control, and water use and conservation emerged as the priorities for mechanization. Amongst them, planting and weeding (activities primarily done by women and children that account for most drudgery and time use) were determined as highest priorities. Furthermore, the group identified a lack of appropriate and affordable tools for animal traction and conservation agriculture.

Previously, other animal-drawn planter technologies had been introduced in Burkina Faso and in the West African region. Specifically, a planter originating in Mali and introduced in Burkina Faso several years earlier had failed to be adopted by local farmers. Reasons for the lack of adoption included the high cost and poor performance. Using a process of adaptive management, ASMC Burkina Faso team evaluated a diverse set of technologies with varying levels of complexity to test compatibility with the local economic, social, and environmental conditions. The improved planter strategically addressed constraints limiting performance and cost.

Specifically, the team modified the following components:

- 1) **Drive mechanism:** The earlier drive mechanism was a special gear drive that was expensive to purchase and could not be repaired or replicated at the village level with locally available tools. ASMC designed a much simpler, open-gear drive and trained local blacksmiths to build and repair them with inexpensive, locally available materials.
- 2) **Seed plate:** The earlier seed plate was cast and machined in France, limiting the ability to be procured, built and repaired by local blacksmiths. The ASMC planters are built locally by village blacksmiths using locally available aluminum castings and finish. Replacing the imported seed plate spiral bevel gear drive with an inexpensive, open spur gear drive built locally reduced the cost of the planter by more than 50%. ASMIH also collaborated with the manufacturing training center for youth to create a mold injected planter seed plate to improve fit and functionality for maize, sorghum, millet, and cowpea.
- 3) **Seed/Furrow openers:** The ASMC is promoting conservation tillage and reduced tillage intensity to improve water infiltration, reduce wind and water erosion, and improve soil health. The new planter has a furrow opener designed explicitly for use in low-disturbance or minimally tilled land. The modified furrow opener can open a seed furrow at the desired depth and firm the soil at the base of the furrow for seed placement.
- 4) **Furrow closer:** The ASMC planter uses concave disk furrow closers to move soil over the seed furrow and ensure adequate seed cover while rolling over surface crop residue with minimal delays to unplug trapped and dragging debris. Retaining surface residue protects the soil from wind and water erosion and helps prevent soil degradation from the impact of raindrops.

The ASMC planter is designed to work with a system of technologies designed for conservation agriculture. This system includes the planter, a weeder, a ripper and an ergonomic oxen yoke. The project worked with Mr. Burgui Ly, a local elder, and leader, and utilized two hectares of his farm as a demonstration and testing site. The site was also used to conduct farmer training on a variety of topics

such as low-stress handling of oxen, post-harvest grain storage and crop care technologies to increase yields, increase smallholder profitability, decrease drudgery and protect soil and water quality.

A successful accomplishment of the planters' development includes an improved capacity of local blacksmiths to design, build, evaluate, and repair row-crop, plate-type planters. Working closely with blacksmiths ensures the sustainability of the planter beyond the project lifetime, and ensures farmers' have easy access for equipment repair and maintenance. Additionally, by ensuring local fabrication and materials, the project has reduced the cost of locally built planters by more than 50 percent.

### **Timeline**

In 2016, the team focused on researching the basic planter design, understanding its components, and trying designs that needed to be improved. In 2017, the team continued to refine the planter design for better performance and incorporated components such as furrow opener and closer. The team also invested in working relationships with blacksmiths and local training centers and universities. Specifically, specific technical components such as the seed plate were developed at the metal workshop at the University. In 2018, the planter was distributed to five farming households (one woman).

Additionally, ASMC was able to procure a government level grant by the National Fund for Research and Innovation for Development (FONRID). The award of \$18,666 was used to supplement and accelerate efforts to scale up production (20 additional planters) and use of the planter. A process of evaluation and receiving feedback has begun with the five farming households that were given the first phase of planters. Farmers have received some training in operating the planter.

## **GENDER ASSESSMENT**

Technologies/Mechanization can improve the timing of tasks, reduce drudgery, make labor more efficient; and improve the quality and quantity of food, feed, and fuel. However, they are not inherently gender neutral. Developers, engineers and the actors with whom they work in design and dissemination need to do more to ensure that new technologies will benefit both men and women farmers, addressing not only general but also gender-based constraints.

### **Methodology**

The ASMC project conducted a gender technology assessment of ASMC's planter to understand the gender dynamics that can affect the technology's design and can guide the dissemination and adoption efforts. The team used the Technology Assessment toolkit developed by Cultural Practice, LLC within the INGENAES project to conduct a five-day assessment. The assessment included a two-day workshop to train core team (students and faculty) on the Technology Assessment framework; two days of data collection through focus group interviews with both male and female farmers; and one day in organizing key findings from the interviews and arriving at recommendations.

The objective of the assessment was to:

- Understand gender barriers and enablers to adoption of agricultural technologies
- Understand intra-household gender norms and identify women's roles in household technology adoption
- Identify strategies for better design, dissemination, and adoption of the planter

The assessment explores the direct and indirect effects of the planter and dissemination efforts on men and women around three key areas of inquiry: Time & Labor, Income & Assets, and Intra-household gender norms. The analysis is based on focus group discussions conducted with two male users, one female user, eight male non-users, ten female non-users, three technology developers, and two union leaders at Koumbia and UPPA-Houet (Provincial Union of Agricultural Producers) in Bobo-Dioulasso.

A key point to note is that when this study was conducted (June 2018), the planter was still in the prototyping phase, with not much user information. The planter was given as a “gift” to farmers i.e. farmers did not purchase the technology which would have changed the gender dynamics in design, dissemination, and adoption. Furthermore, users did not have enough time (cropping seasons) to experiment with the technology. Therefore, the study sought to look broadly at gender dynamics around technology adoption and perceptions of farmers by using the frameworks presented in the Technology Assessment Toolkit.

## Time and Labor

Men and women have different roles and responsibilities in the household and on the farm. By better understanding the time and labor involved in these gendered roles and responsibilities, technology developers can design ways to ensure technologies are gender sensitive. In Burkina Faso, on the farm, women are typically responsible for planting, weeding, harvesting, post-harvest activities such as processing grain and selling in the market. Women were also engaged in transporting the harvested crops from the field to the selling point. At the household level, women are engaged in collecting water, childcare, cooking, and fetching firewood (Laeticia 2012). Male farmers are responsible for activities such as planning the family farm, plowing, selecting seed varieties, cultivating the crops, and managing grain stocks.

Planting is perceived as predominantly a woman’s task or role. Men and women respondents mentioned that “*men can plant; it is not forbidden.*” However, it was the accepted practice that women and young girls were responsible for planting. Maize is typically hand-planted by women and young girls using a short-handled hoe known as a ‘daba’ by bending over and placing two seeds every 16 inches (Harrigan 2018). This spacing represents a comfortable action with the hoe coupled with a small step between seed pockets. Two seeds per pocket assure the successful germination of at least one plant resulting in few skips within the row. Women see hand planting and weeding as one of the most tedious tasks in agriculture. Many female respondents mentioned, “*Sowing by hand creates a lot of back pain.*” This is further exacerbated during short and sporadic rainy seasons when the planting time is limited, requiring more concentrated labor.

Women respondents mentioned the time and labor requirements on the ‘husbands’ farm’ (family farm) in comparison with their own farm. Women mentioned that they work every day in the husbands’ farm and only work on Fridays on their own plot of land. They also said that the first priority was to the husband’s land. This usually resulted in the women not having enough time to cultivate their lands in time for the rainy season. Both respondents both viewed the planter favorably due to its ability to save time, labor, and reduce the drudgery associated with planting.

Overall, women are responsible for many tasks in the farming process, and women have limited time and excessive labor requirements. The planter has advantages in being efficient, time, and labor saving. However, it is important to note that the value of women’s time is considered to be less important, and for this reason, farmers may be more inclined to adopt technologies that save men’s time. On the other hand, there is a real possibility that the mechanization of ‘women’s tasks’ may cause men to take greater control of those tasks. It is also important to note that in Burkina Faso hired farm labor is usually landless

or ultra-poor women. An unintended consequence of mechanization is the possible displacement of wage labor, resulting in loss of livelihoods for such women.

## Income and Assets

The Burkina constitution guarantees the right to property and makes no distinction based on sex. However, in rural areas, customary land tenure systems are dominant over statutory laws and national strategic policies. Although women contribute to more than 50 percent of agricultural labor, the notion that men should exclusively hold land management rights is still prevalent (FAO 2011). Women's plots have a mixed status, between a gift and a loan. Most female respondents mentioned that their plots had low soil quality and fertility. One respondent mentioned that *"if the woman is able to make the land fertile, it is taken up by the husband and woman is reassigned a different poor land."*

Livestock is a tangible asset in cash strapped subsistence households with 93% of Burkinabe owning livestock (Kaur, Graham, Eisenberg 2017). However, there is a gender gap in asset ownership, especially livestock. Women tend to own and are responsible for small animal rearings such as goats and chicken. Cattle and oxen are considered men's property; therefore, women do not control or manage the sale of such draft animals. The only exception is where women are household heads. Respondents also mentioned that women face barriers in accessing service providers who rent oxen for draft power.

Women's income is derived from selling vegetables, maize, cowpeas, and 'transformation' or value addition activities such as making couscous, grinding maize flour, and makes spices. Although family expenses are shared between the husband and wife, men do not share their income with their wives. Family expenses include health expenses, buying food (if there is not enough production) and children's education. Women mentioned that they do not control household income spending; however, they do control the income they make. A respondent mentioned that she pays for children's education and sets aside money for health, especially to take her baby to the hospital (treatment/ medicines). Although her husband later returns back the amount she spent, she keeps the money as a 'safety insurance.'

This constraint on women's income might make it less likely for a woman to purchase technology or inputs. This also poses a barrier for a women's ability to rent technology or access service providers. The financial constraint in purchasing technologies or inputs also affects the household's ability to use tools. Credit is commonly used for the purchase of new technologies, inputs, and sometimes education. Male and female respondents mentioned women having easier access to credit through Unions or Farmer Associations that target women.



Adjara generates a small income through the sale of crops and value addition or 'transformation' activities like making couscous. While Adjara controls the income she makes, she uses her income towards children's school fees, children's health expenses (safety insurance), and to purchase food. Adjara has been a Union member since 1998, and has benefited from the membership. For example, Adjara has opened two bank accounts; one for herself and another for her daughter through the Union. She is teaching her children how to save money and withdraw money to pay school fees. Her husband does not share 'his' income with her.

## Intra-Household Gender Norms

There is a need to understand social processes or intra-household dynamics within farming households, to develop improved agricultural technology that will be adopted and continue to be effectively used by resource-limited smallholder farmers (Theis 2018, Curry 1996). During the focus groups, respondents were asked questions on the purchase and usage of past mechanical technologies to understand the role women and men play in household technology adoption.

In the Burkina context, women do not have decision-making autonomy in crop production. Husbands decide what is to be produced. However, when it comes to the purchase of necessary technology, there is some joint decision making within the households. Female respondents mentioned that *“The man decides what to produce but consults the woman before the purchase of a tool.”* *“He will inform...have a discussion with me if necessary to buy it.”*

Although socio-cultural norms vary by social groups, religion, and region (urban vs. peri-urban vs. rural, north vs. south), there was a strong social perception across the board that mechanized tools will be used by men even if women have access to them. Furthermore, there was repeated emphasis that women’s time and labor/activities were determined by the husband i.e. the wife would need her husband’s approval to choose a different way to spend her time. Both of these perceptions were acknowledged by project staff and female respondents. Project staff believed that *“if a mechanized tool is introduced, men will use it and women will be made to do a more laborious task.”* Female respondents mentioned that *“The work [planting] is too hard, the husband will use it [mechanized tool] to work quickly, [since it is] less painful than before.”*

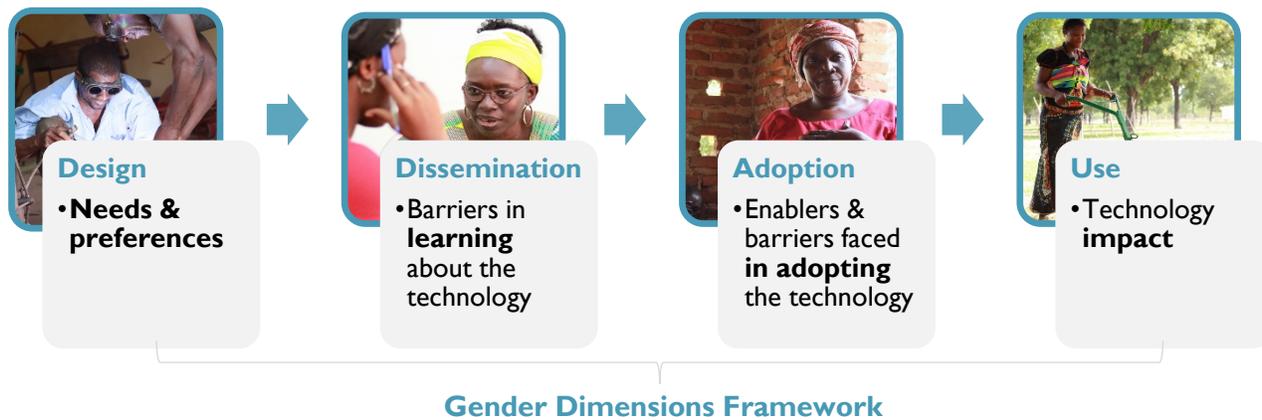
Two women specifically mentioned that they would be ‘sent to do a task’ that brings more money to the family, such as doing business in the market. *“Husband will take it [mechanized tool] and use it, and give me another task that may not be on the field, like selling in the market.”* The women also believed that it was important for women to introduce this innovation to the men: *“If women bring this innovation, introduce it to the husband, then the husband will buy it and let them [women] do something else with their time.”*

This give-and-take relationship within the household in technology adoption is apparent in the previous adoption of technologies such as silos for grain storage and using PICS bags for composting. In both cases, the husbands made the decision to purchase the technology and paid for it after discussing it with their wives. However, the women played a critical role in introducing the husband to these technologies. For example, the silo grain-storage technology was promoted by the World Food Program through Unions like UPPA Houet as a part of the Purchase for Progress (P4P) project. The Union trained the women members in using the silos and subsidized the price from CFA 100,000 (USD 181) to CFA 25,000 (USD 45). The women, in turn, influenced their husbands and neighbors to adopt the technology, and the husbands decided to purchase the silos. It is important to note that the P4P project had a focus on women’s empowerment through the focus on women trainers working with women-only farmers groups.

## GENDER CONSIDERATIONS WITHIN TECHNOLOGY ADOPTION

Technology design and dissemination reflect the current priorities, perceptions, and norms both about agricultural systems and about gender. Technologies are not inherently gender neutral, and there is a need to understand the needs of the users – both male and female before design. Sophie Theis mentions, *“Technology adoption is not only about how well-suited the technology is to a user’s needs, but also*

about overcoming the constraints to learning about, investing in, and using the technology, which are gendered processes.”<sup>2</sup>



Key areas of inquiry: Time & Labor; Income & Assets; Intra-Household Gender Norms

In this section, further considerations and recommendations to better integrate women in the planter are based on the four stages of technology adoption used by IFPRI: design, dissemination, adoption, and use. For this report, we do not address ‘use’ because the technology is still early stage.

## Design

The few male farmers who have the planter believe it is easy to use, and appreciate that it reduces time constraints and saves money that would have been used to pay for hired labor. One female farmer mentioned that there was difficulty in maneuvering the planter at the end of the planting row. This could have been due to a lack of sufficient technical assistance in using the planter and might indicate the need for further animal training.

The planter uses draft animal power and is designed to be drawn by a pair of oxen using ergonomic yokes. However, this poses a gender barrier due to women’s lack of access to draft animal power such as oxen. Oxen are considered major livestock assets that are traditionally owned and controlled by men. Furthermore, a pair of healthy oxen are expensive at 250,000 CFA (USD 455) per ox. This is unaffordable for subsistence female and male farmers who make approximately 200,000 CFA (USD 1/day) over a year. Women cited that service providers rarely rented oxen to women farmers because the small size of their land did not generate enough profit for the providers and a preference to work with men farmers.

**Tip:** Ensure the technology price point is accessible by men and women. Ideal price point is CFA 20,000 – 25,000 (USD 45). The tool should be durable and not add an additional financial burden for farmers to spend on the repair.

Since the planter is versatile and has low power requirements, a recommendation is to test the planter’s efficiency using donkeys as draft animal power instead of oxen. Many households already own donkeys for agricultural labor in hoeing, plowing, and transportation of the harvest. There is comparative ease in handling donkeys, which makes it more suitable for use by women; and there are fewer gender restrictions for women to own and work with donkeys (Kaumbutho 2000). Additionally, donkeys cost CFA 44,000 (USD 80), which is relatively more affordable for both male and female subsistence farmers.

<sup>2</sup> This framework has been adapted from REACH (2018) Considering gender when promoting small-scale irrigation technologies: Guidance for inclusive irrigation interventions & INGENAES (2017) Technology Assessment Toolkit

## Dissemination

### Technical Training

Appropriate information given and received on a timely basis is critical to the development and use of technological innovations, yet women frequently cannot obtain such information. Agricultural extension services have largely ignored women's role in crop production and have not focused on women's needs for technology and information. This lack of information is further compounded by socio-cultural norms and practices that prevent women from participating in interventions or training. There is a need to use appropriate information channels and provide relevant information by explicitly addressing gender aspects of crop production. (FAO 2009)

In ASMC's context, there is a critical need for technology training for both men and women farmers. (While women farmers had attended field days or demonstrations, they had not received technology training.)

- **Training method needs to be gender sensitive.** This can be done by having separate training for men and women. The training needs to be at a time that is suitable for women to attend (not mornings). The training should use local language and simplify terms and concepts to account for low literacy amongst many women. Having gender sensitive training can encourage women to try the planter
- **Training content should address the gendered aspects of crop production.** Even if women do not choose to operate the planter themselves, the technology can benefit women farmers by capitalizing on the critical role women play in enabling household adoption of technology. Training content can cater to women's roles in crop production by encouraging households to invest time saved (by using planter) towards other income generating activities such as value addition. The training can also encourage men to let women spend time on their farms to cultivate diverse nutritious crops for household consumption.

**Tip:** Cater to female landless laborers by providing income-generating opportunities such as training them to be service providers.

Furthermore, there needs to be consistent technical assistance provided to farmers that will support farmers in learning and using the technology.

## Adoption

### Working with cooperatives and Unions

Although it is not widely recognized internationally, Burkina Faso has one of the most active and diverse civil society networks in Sub-Saharan Africa in terms of individual and organizational capacity as well as for its enabling environment. Much of this is in the form of farmers' groups as well as the National Farmers' Union, which has over 300,000 members, both men, and women, and is spread across 1,200 villages. The Union is independently financed through various activities that attract donor and government funds. Such Farmers' groups are recognized as having a significant impact on the dissemination of information and providing marketing and credit (GFRAS 2014). Often these associations or farmer groups are led by one or several leaders who have several mandates. They are usually the most dynamic members of the community, adopting innovations observed at exchange visits organized by projects. The economic and social power of these individuals is greatly increased by such positions, which are often paid. These

associations and their broad community engagement enable better distribution of information, connect farmers to resources, and build the capacity of farmers. (IFAD 2006).

The Union des professionnels agricoles de l'Est et du Centre-Est (UPPA-Houet) plays a critical role in enabling adoption through its provision of training, credit for purchasing technologies and connecting farmers to markets. UPPA also promotes new technologies by housing equipment, testing the innovation, and letting farmers try out the equipment. The Union has 20,500 members, 11,000 (52%) of whom are women (WFP 2014). Within the Purchase for Progress (P4P) project, multiple women-only groups were created where female farmers received targeted resources related to crop production, marketing, and access to credit. Economic empowerment, coupled with gender training, is leading women to be more engaged in decision-making in the Union and their communities (Graham 2014). UPPA is an ideal partner in promoting the planter due to its high level of trust among both male and female farmers. ASMC can work with UPPA-Houet by:

- Giving the planter for **demonstration and testing purposes**, and train UPPA staff in the usage and benefits of the planter. The union can act as a local distributor to sell or rent the Planters out to interested farmers. (They currently rent out a threshing machine).
- **Connecting both men and women farmers to UPPA** to access credit for purchasing the planter, and address market-access constraints. Being a member may also enable women farmers to locate service providers.
- **Connecting Blacksmiths to UPPA** to provide in-house technical repair and maintenance for the planters. This can also help address the farmer's lack of mechanical skills and promote ASMC's mandate of scalability, suitability, and sustainability.



**Mazouma Sanou**, a respondent, works as the Gender Extension Specialist at UPPA and was earlier a trainer/leaders within the P4P project. Mazouma is a dynamic UPPA staff, and in her role, she is engaged in enabling women members' access credit and inputs, and manage loans. Mazouma also trains women farmers in using new technologies and value addition activities. Mazouma mentioned that the Union uses the Training of Trainers approach to train its 20,000 farmers. Furthermore, she spoke to UPPA's role in learning and testing new innovations, and negotiating purchase/loan of technologies.

## NEXT STEPS

The planter needs to be simple in design, easy to use (by men, women, children), easy to set up, and versatile in draft animal use (oxen, donkey) to enable adoption by male and female farmers. The project should also work more closely with extension workers, Unions, and the Ministry of Agriculture to enable better testing and dissemination. Specific next steps include:

- Test the planter's efficiency using donkeys as draft power
- Test planter's ergonomics and design with women and men
- Conduct appropriate technology training for women and men
- Observe and determine if planter use changes household dynamics in terms of women's control over their time and labor

## ACKNOWLEDGEMENTS

The author would like to acknowledge the contributions of the Appropriate Scale Mechanization Innovation Hub housed at Nazi Boni University Burkina Faso for their engagement in conducting the Gender Technology Assessment process. Specifically, professors - Dr. Vinsoun Millogo, Dr. Michel Kere, Dr. Salimata Pousga and Dr. Valerie Bougouma played an integral role in conducting the assessment. The author would like to thank the following Nazi Boni University students involved in the organizing logistics, participating in the training, collecting data and transcribing interviews: Sayaogo Boureima, Yé D. Victor, Ganou Fatoumata, Dianda Saidou, Barro Awa, Zugmoré Linda, Sanfo Ouda, Hafsatou Koudougou, and Raoul Nikiema. The author would also like to thank Dr. Timothy Harrigan, Michigan State University, Cristina Manfre, Cultural Practice, Robert Burdick and Ashley Juengling, Tillers International, and Timothy Rendall, University of Illinois.

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*This report is made possible by the support of the American People provided to the Feed the Future Innovation Lab for Sustainable Intensification through the United States Agency for International Development (USAID). The contents are the sole responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government. Program activities are funded by USAID under Cooperative Agreement No. AID-OAA-L-14-00006.*

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