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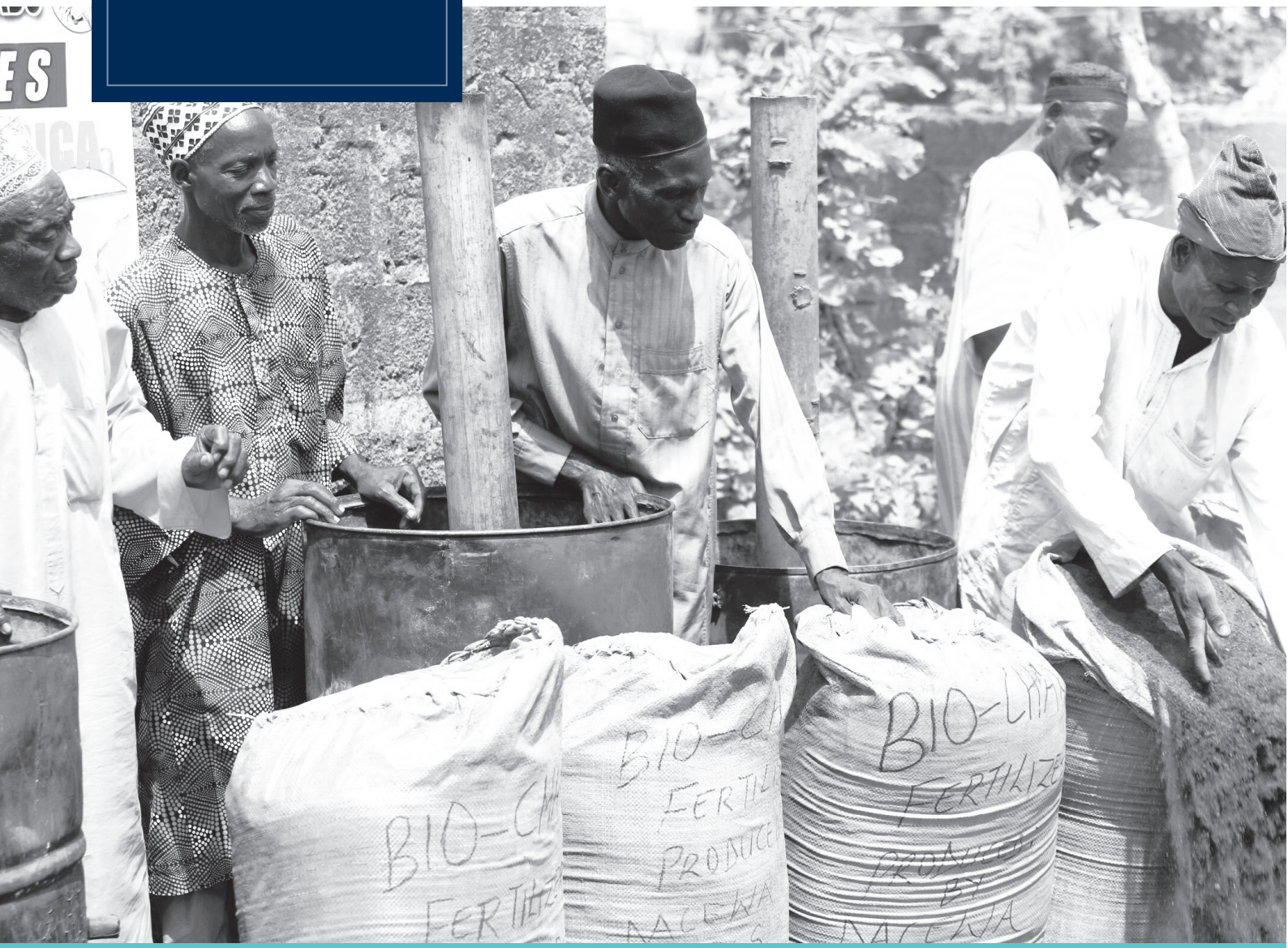
Linking Gender and Nutrition to Agricultural Outcomes



A Case Study by IGNITE

July 2024

The Impacting Gender and Nutrition through Innovative Technical Exchange in Agriculture (IGNITE) project was a technical assistance programme, implemented by Tanager and its learning partners, in four African countries from 2018–2024. The project supported 35 African agricultural institutions across 18 countries to integrate gender and nutrition into their business operations and agricultural interventions.

Linking Gender and Nutrition to Agricultural Outcomes

Introduction

Agricultural programmes are increasingly incorporating a gender and nutrition-sensitive lens to target outcomes such as women's empowerment and dietary diversity. However, it is not clear whether this approach also contributes to better agricultural outcomes.[1]

There is existing evidence that reducing gender inequality and improving the nutritional status of families can directly lead to improved agricultural productivity. For example, previous research[2] has found that women farmers have between 26–36% lower productivity than their male counterparts due to structural inequalities, including the heavy burden of domestic labour and lower access to extension services, agricultural inputs, credit, and farmable land.[3] [4] [5] [6] Therefore, programmes aimed at alleviating these structural inequalities for women can have a direct impact on agricultural outcomes. Other research suggests that improving the nutrition of households that have low diet quality can increase agricultural productivity by allowing these households to escape a 'low nutrition–low productivity trap', where the health impacts of poor nutrition prevent households from engaging in practices that would otherwise improve their agricultural productivity.[7]

[1] Agricultural outcomes include agricultural productivity (yield), knowledge and adoption of agronomic best practices, access to inputs like agricultural extension and information, improved seeds, fertilizers, or technologies for farming.

[2] Chosen examples focus on IGNITE's target countries of Ethiopia, Nigeria, Burkina Faso, and Tanzania.

[3] World Bank. (2023). Gender Gaps in Agriculture Productivity and Public Spending in Nigeria. Nigeria Gender Innovation Lab.

[4] UN Women, UNDP, UN Environment. (2018). Factors Driving the Gender Gap in Agricultural Productivity in Tanzania.

[5] Gniza Innocent Daniel. (2021). Modes of Access to Land, and Gender-Related Productivity Gap in Burkina Faso. Policy Brief for AERC.

[6] World Bank. (2019). Ethiopia Gender Diagnostic Report: Priorities for Promoting Equity. Gender Innovation Lab (GIL).

[7] Berha, Mogess, & Wassie. (2021). Revisiting nutrition-labor productivity link: new empirical evidence from farm households in Ethiopia.

Between 2018 and 2024, IGNITE worked with 35 African agricultural institutions, impacting 18 countries, to strengthen their ability to integrate gender and nutrition into their interventions. This involved providing technical assistance and capacity building on gender and nutrition integration, as well as conducting research to evaluate the effectiveness of gender and nutrition programming to support decision-making. While IGNITE's research was not explicitly designed to measure the link between gender and nutrition programming and agricultural outcomes, it generated some evidence of this link. This case study showcases this evidence, drawing on examples from IGNITE's research with agricultural institutions such as Sasakawa Africa Association (SAA), Digital Green, Alliance for Green Revolution in Africa (AGRA), and African Agricultural Technology Foundation (AATF). While these examples are context-specific, they do highlight some general channels by which gender and nutrition programming is linked to agricultural outcomes through more equitable access to information for women, accelerated adoption of improved technologies, or through re-imagined delivery models.

Evidence from IGNITE

IGNITE's clients implement a wide variety of agriculture programmes, such as training government extension officers (by SAA), digitisation of extension services (by Digital Green), production and distribution of improved technologies for farmers (by AATF), a farmer-led extension model (by AGRA), and many more. Each of these organisations worked with IGNITE to integrate gender and nutrition into their work. Some of these organisations tested entirely new gender or nutrition-sensitive modalities, while others adapted existing modalities to better consider gender or nutrition.

IGNITE helped strengthen African institutions through three mechanisms:

1. Co-creating products and services with clients to foster ownership as well as build their capacity to undertake the activities in the future
2. Implementing activities and services directly with clients (like providing a training to a client)
3. Reviewing clients' existing policies, approaches, strategies, plans, or tools to improve these documents without directly building capacity

IGNITE also conducted numerous research studies[8] with these organisations to generate evidence on the effectiveness of gender and nutrition-sensitive programmes. This evidence would support decisions to adapt or scale programmes for more impact. These studies were both quantitative and qualitative, and while each was context-specific and had different objectives, most measured either gender outcomes (e.g., women's empowerment, decision-making power, access and control over resources, gender roles); nutrition outcomes (e.g., dietary diversity, food consumption); or agricultural outcomes (e.g., adoption of agronomic best practices, access to extension services, use of improved technologies) in some way.

There is some evidence[9] of a link between gender and nutrition-sensitive programming and agricultural outcomes. This evidence is limited to the context-specific studies from IGNITE and is therefore not exhaustive. It nevertheless provides examples of the pathways by which gender and nutrition programmes might impact agricultural outcomes, such as increased knowledge or adoption of agronomic best practices for women and men, self-reported improvements in farm productivity, increased access to extension services, and increased use of improved inputs and technologies. For IGNITE's clients, these outcomes were realised through gender and nutrition-sensitive programming focused on:

1. More equitable access to information for women
2. Accelerating the adoption of improved technologies (e.g., seeds, mechanization) for women and men
3. Re-imagining a traditional delivery model to the benefit of both women and men

More equitable access to information for women

One measure for reducing gender inequality and influencing nutrition choices — which can also lead to improved agricultural productivity — is empowering women, men, and youth to access high-quality information. Access to information often reaches some members of the households (mostly men), while excluding others (mostly women)[10]. Closing this information gap can be the first step in a positive chain of events towards agricultural outcomes **(see Figure 1).** The information needs to be retained (knowledge of best practices) and applied (adoption of best practices) to result in improved agricultural productivity.

[8] A full list of the IGNITE studies referenced in this case study, including links to the final reports, is provided at the end of this case study.

[9] The evidence provided in this case study is limited to the research studies conducted under IGNITE, which were not always explicitly designed to measure the impact on agricultural outcomes. The findings provided are not necessarily representative of other programme contexts.

[10] O'Brien, Gunaratna, Gebreselassie, Gitonga, Tsegaye, De Groote. (2016). Gender as a Cross-Cutting Issue in Food Security: The NuME Project and Quality Protein Maize in Ethiopia.

Figure 1 – Positive chain of events stemming from increased access to information

1. Closing the gender gap in information impacts productivity and adoption of best practices .

IGNITE's studies provide clear evidence that women do not have access to the same levels of information on agronomic best practices as men. An IGNITE study led by Laterite with Sasakawa Africa Association in Ethiopia,[11] for example, found that women teff farmers had less access to information than men across all practices measured **(see Figure 2)**, a finding that is confirmed in the literature in a wide range of contexts.[12] Access to information can lead to increased adoption of best practices and improved agricultural productivity or yield.

extension training. Extension systems have been shown to increase farmer productivity in Africa[14] [15] but have also been shown to exclude women in many contexts.[16] IGNITE's clients experimented with different gender-sensitive modalities to increase access for women, including women-only extension groups (Digital Green), creating gender-sensitive extension content (SAA, Digital Green), or increasing the number of lead farmers who are women (AGRA).

IGNITE's research found that these programmes had impacts on some agricultural outcomes,

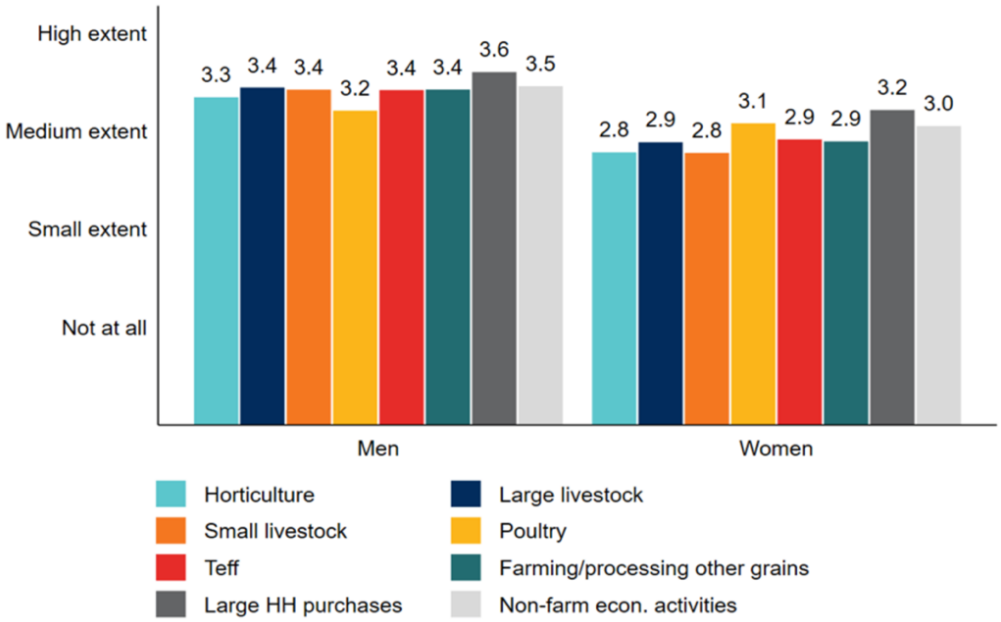


Figure 2. Comparing access to information between women and men teff farmers in Ethiopia[13]
Note: Data shows average self-reported access to information for various decisions A score of 1 represents no access at all; 4 represents high access.

While increasing access to information is just the first step on the path towards improved agricultural outcomes, IGNITE's work further illustrates how it can lead to increased adoption of best practices and improved agricultural productivity or yield. A primary channel used by agricultural institutions, including IGNITE's clients Digital Green, SAA, and AGRA, to increase access to information is

including increased knowledge and adoption of agronomic best practices, and self-reported increases in productivity. One study, led by Laterite with Digital Green,[17] found that women who attended video-mediated training (in either women-only groups or mixed-sex groups) were more likely to have more knowledge of best practices, more likely to adopt best practices, and

[11] Laterite / IGNITE. (2022). Gender-specific drivers of best practice adoption among teff farmers in Ethiopia. For SAA.
[12] Ragasa. (2012). Gender and Institutional Dimensions of Agricultural Tech Adoption: Review of Literature and Synthesis of 35 Case Studies.
[13] Laterite / IGNITE. (2022). Gender-specific drivers of best practice adoption among teff farmers in Ethiopia. For SAA.
[14] Davis et al. (2012). Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa. .
[15] Elias et al. (2013). Effect of Agricultural Extension Program on Smallholders' Farm Productivity: Evidence from the Highlands of Ethiopia.
[16] Ragasa. (2012). Gender and Institutional Dimensions of Agricultural Tech Adoption: Review of Literature and Synthesis of 35 Case Studies.
[17] Laterite / IGNITE. (2023). Intra-household decision-making and practice adoption of women-targeted digital extension. For Digital Green.

had more decision-making power, compared to women who did not attend.[18] Similarly, IGNITE's study by Laterite for SAA in Ethiopia[19] found that for both women and men, having more access to information via extension training attendance is strongly associated with greater adoption of best practices. This is consistent with existing literature on the topic. The study also found that more attendance at trainings is associated with increased adoption of best practices for women when the training focuses on activities where women play a bigger role (e.g., weeding, sowing in rows). Another study in Nigeria, led by IGNITE partner 60 Decibels with AGRA,[20] explored farmers' experiences with a community-based advisor (CBA) extension model, a farmer and community-led approach.

One of the objectives of the study was to understand how the experiences of male and female farmers with CBAs differed, and how gender-specific constraints and opportunities affect these experiences. Ninety-eight percent of the 263 farmers (both women and men) in the survey reported that they increased or slightly increased crop production after working with their CBA. This evidence suggests that gender and nutrition-sensitive programs targeting more equitable information access can influence agricultural outcomes like the adoption of agronomic best practices and, ultimately, productivity.

Accelerating the adoption of improved technologies

A second channel by which gender and nutrition-sensitive agriculture programs can influence agricultural outcomes is by accelerating the adoption of improved technologies.

2. Adoption of gender or nutrition-sensitive technologies can impact agricultural outcomes.

Some agricultural institutions develop and promote entirely new technologies that can improve agricultural outcomes like yields while simultaneously influencing gender or nutrition outcomes. One such example is the pod-borer resistant (PBR) cowpea, which is an improved seed variety developed and promoted by AATF in Nigeria. [21] This intervention is nutrition-sensitive in that it can lead to increased consumption of nutritious foods for the households who are growing it, while simultaneously increasing yields, which can be sold for income and to purchase more nutritious food. IGNITE supported AATF in developing a behaviour change communication strategy to stimulate increased adoption and consumption of the PBR cowpea. It also conducted a study[22] around the early adoption of the seeds. This study found that 45% of the observed farmers either slightly or very much increased their consumption of cowpeas after planting the PBR variety, and 94% reported an increase in production and income.[23] This is evidence of double impact, on both nutrition outcomes and agricultural outcomes.

AATF and its subsidiary Agridrive Limited also provide farm mechanisation services (e.g., tractors for ploughing, planting, and harvesting) to smallholder cassava farmers in Nigeria. The majority of smallholder farmers in sub-Saharan Africa still farm using traditional means,[24] and are not able to take advantage of time and labour-saving technologies. A study conducted by IGNITE research partner Laterite in Nigeria[25] found that women were even less likely to have access to these technologies than men. The study, which compared the time savings that can be gained by women and men by using mechanised farming methods, found that while mechanising land preparation, planting, or harvesting saved hundreds of hours for farmers, this mostly benefitted men, who typically carried out these farming practices. Women — who spend the majority of their time on cassava post-harvest processing (e.g., peeling, slicing, grating, frying) — were not benefitting equitably from this technology.

As a result of these findings, AATF invested in a cassava processing machine, which can reduce the

[18] While this study did not find material differences in outcomes between women-only groups and mixed-sex groups, it finds that the main benefit of women-only groups is that women report feeling more comfortable in these groups. Women mention feeling free to ask questions, facing fewer cultural barriers, also appreciated the more suitable timing and location of the sessions and the gender-sensitive content in the videos. Therefore, this gender-sensitive modality is likely increasing the attendance of women to extension, which is associated with positive effects on the knowledge and adoption of best practices.

[19] Laterite / IGNITE. (2022). Gender-specific drivers of best practice adoption among teff farmers in Ethiopia. For Sasakawa.

[20] 60 Decibels / IGNITE. (2022). Farmer Experience with Community-Based Advisors (CBAs). For AGRA. [insert link]

[21] AATF. (2021). Why is PBR Cowpea important?

[22] 60 Decibels / IGNITE. (2023). Observer farmer experience with PBR Cowpea. For AATF.

[23] Note that this study was conducted very early stages of technology adoption and was measuring farmer perceptions of changes.

[24] Arslan, Floress, Lamanna, Lipper, Rosenstock. (2022) A meta-analysis of the adoption of agricultural technology in Sub-Saharan Africa. Link.

[25] Laterite / IGNITE. (2022). Time savings from farm mechanization in Nigeria – how is it spent and who benefits? For AATF.

time required to process cassava by up to 30 times, saving hundreds of hours of labour per hectare of harvest. Not only do these machines have a gender impact (reducing time spent for both women and men), but they also contribute to better agricultural outcomes as well, as farmers can farm more land in less time, leading to higher output and income.

Reimagining traditional delivery models

Agriculture programmes have for years applied similar methods such as in-person extension services and demonstration plots. While these methods have been shown to improve agricultural productivity in many contexts, they have also been shown to exclude women.[26] Additionally, they were also often developed before the advent of modern technologies such as mobile phones and wide-spread internet connectivity. IGNITE worked with agricultural institutions to reimagine these traditional models to include gender or nutrition-sensitive activities, and the resulting delivery model generated a wider range of benefits that are shared across more diverse users than was originally intended. The following examples indicate how reimagining delivery models to incorporate gender-sensitive technologies can lead to improvements in agricultural outcomes for all farmers.

3. Employing gender-sensitive technology improves the efficiency of extension agents.

Digital Green has entirely reimagined the delivery model for agricultural extension in Ethiopia by using locally relevant videos instead of the traditional in-person format. Digital Green has also experimented with gender-sensitive models, such as sharing these models in women-only farmer groups or featuring women performing tasks traditionally associated with male farmers. These gender-sensitive videos were overwhelmingly approved of by participants, with findings from an IGNITE study showing that 98% said they enjoyed the way men and women were depicted in the videos. The videos also received widespread approval from the development agents , who found them to be an efficient and clear tool for communicating with the farmers and improving the quality of farmer interaction.

4. Employing a gender-sensitive technology expands access to information for all.

Digital Green in Ethiopia also includes its use of Interactive Voice Response (IVR) technology to increase the reach of its dairy farming extension messaging. IVR technology was identified as a gender-sensitive approach because it would allow women to access information from their own homes and increase access for women with limited literacy. A study by 60 Decibels[27] found evidence of improved agricultural outcomes among women: 29% of women who were primary listeners to the messages reported increased income from the messages, while 16% reported increased production. However, the study also found that delivering extension services through the innovative IVR technology improved these outcomes even more among men. Other researchers have identified IVR as a promising strategy for improving agricultural outcomes among farmers with disabilities, illustrating how this technology, which was designed to promote women's access to information, can ultimately lead to improvements in agricultural outcomes for other traditionally excluded groups.

Conclusion

Gender and nutrition-sensitive agriculture programming not only has the potential to improve gender or nutrition outcomes, but agricultural outcomes as well. These agricultural outcomes include increased knowledge or adoption of agronomic best practices and, ultimately, improved productivity. This case study has demonstrated evidence from IGNITE clients Sasakawa Africa Association, AATF, Digital Green, and AGRA that they have achieved some improvements in agricultural outcomes through gender and nutrition-sensitive programming, focused on equitable access to information for women, accelerated adoption of improved technologies, and re-imagined delivery models. While not exhaustive, this evidence suggests that there is indeed a link between gender and nutrition-sensitive programming and positive agricultural outcomes.

Future investments in research should consider specific focus on the link between gender and nutrition programming and agriculture outcomes. This might involve explicitly comparing agricultural outcomes between programmes to identify if gender or nutrition-sensitive models have a greater impact on agricultural outcomes. While gender and nutrition are important, having a clear understanding of how these connect to productivity makes an even stronger case for their inclusion in agriculture programming

[26] Ragasa. (2012). Gender and Institutional Dimensions of Agricultural Tech Adoption: Review of Literature and Synthesis of 35 Case Studies. Link.

[27] 60 Decibels / IGNITE. (2022). Dairy farmers' experience with IVR messages. For Digital Green.

This case study was written by **John DiGiacomo, Senior Research Associate, Laterite; Dale Barnhart, Research Director, Laterite; Sara Coelho, Business Development and Communications Director, Laterite; and Tanager Technical Experts**

IGNITE Partners

Tanager, an ACDI/VOCA affiliate, is a global development organization that empowers people to realize life-changing economic and social opportunities. We have 30 years of experience implementing gender-transformative and nutrition-sensitive agriculture approaches, connecting actors across the production supply chain, fostering knowledge and access for women and other marginalized groups, and unlocking sustainable, climate-smart economic opportunities for all.

Laterite is a data, research, and advisory firm dedicated to providing high-quality research services for social impact in East Africa. We provide technical advice on the design and implementation of research projects, development interventions, and socio-economic policies. We strive to deliver impactful research that helps decision-makers find solutions to complex development problems.

60 Decibels is a tech-enabled social impact measurement and customer intelligence company, spun out of Acumen. We make it easy for companies and organizations to listen to the people who matter most. Using our Lean Data approach, we collect social impact and customer feedback data through phone surveys and other methods.

Morningside Office Park, Ngong Road
2nd Floor, Wing A suite C
P.O. BOx 1308-006060 Nairobi: Kenya

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