



Bridging Uganda's Digital Divide:

Gender Mainstreaming in Digital Agriculture

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If the decision to own a phone was entirely mine, I would have a mobile phone by now, but my husband does not allow me ownership because he feels it would make it easier for other men to reach me and hence start extra marital commitments,” said a woman respondent from Lodonga Sub-county, Yumbe District.



“The burden of providing for my family lies on me, but my income is insufficient to meet their needs. Even though owning a mobile phone would be beneficial, it falls very low on my list of priorities. In fact, it is a luxury,” said a woman respondent from Midigo Subcounty, Yumbe District.



“I bought a phone but it's as good as if I didn't have it. My phone is always with my husband, and he filters all the phone calls that come through. Because of the cultural and religious beliefs, women should respect their husbands and therefore I cannot act to the contrary,” said a woman respondent from Midigo Subcounty, Yumbe District.

Introduction

Uganda's agricultural sector plays a central role in the economy, contributing 26 per cent of GDP while employing the highest percentage of the working population (64.6 per cent). Agriculture is also a gendered phenomenon considering there are more female (88.9%) than male farmers (78.6%) in the sector.

Sector: Agriculture

Sector Outcome Indicators	Q4 Actual 2018/19	Performance Targets					
		2019/20	Base year	Baseline	2020/21	2021/22	2022/23
Proportion of arable land under irrigation	11.1%	9%	2014	5%	13%	15%	15%
Change in production volumes by priority and strategic commodities	33%	32%	2008	15%	34%	35%	35%
Percentage share of agriculture to GDP	22%	26%	2014	24%	26%	26%	26%
Percentage change in yield of priority and strategic commodities	28%	35%	2008	13%	30%	31%	31%
Agricultural GDP growth rate	3.8%		2014	2.3%	4.8%	5.0%	5.3%

Additionally, despite the opportunities in agriculture, more than half of the farming population depends only on subsistence agriculture as the main source of livelihood (from 68.9 to 55 per cent). The UN Capital Development Fund (UNCDF) in 2019 conducted a [market assessment study](#) to identify the major constraints preventing farmers and ecosystem actors in Northern Uganda from realising full benefits in their agricultural livelihoods. This study, as part of the Inclusive Digital Economies Programme, analysed how digital agriculture could reduce the challenges and unlock new opportunities using a market systems development approach.

Over the past 25 years, Uganda has gradually progressed to narrowing gender inequalities, but essential gaps persist on key development indicators.

Women face structural disadvantages on several economic and social factors influencing lifetime outcomes, starting with education. Adult literacy rates for women stood at 71% in 2018 against 83% for men. Although girls are marginally more likely than boys to be enrolled in primary education, they are lagging in enrollment in secondary education (39% for girls vs 43% for boys). Only a quarter of girls complete the lower secondary education cycle. While secondary school enrolment has increased in the West Nile subregion since 2014, the Northern Region has seen a decline from 16.3% in 2012 to 12.3% in 2017.

Evidence shows that a digitally included population is key to reducing income inequality and poverty while also boosting household livelihoods, productivity, development, and economic growth. Evidence also indicates that financial inclusion supports monetary policy transmission mechanisms and financial stability. **Digital technology can catalyse socio-economic development, but the lack of access to official identification and proof of address is a major constraint to financial and digital inclusion, especially in rural areas.**

Uganda's third National Development Plan (NDPIII 2020 – 2025) emphasises the need for increased productivity and production in agriculture while nurturing the potential of the other sectors (tourism, minerals, oil and gas). The linkage between disproportionate percentage of rural poverty and subsistence agriculture is among the major lessons identified while developing NDPIII. To this end, various initiatives were put forward for the financial year 2020/21 to increase production, including enhancing the provision of improved agricultural inputs, water access, postharvest handling, VAT waivers for agricultural equipment and increasing access to finance (including agricultural insurance subsidies).

The Uganda Vision 2040 identifies Information Communication Technology (ICT), access and utilisation not just as a cross-cutting development enabler but also as a significant business opportunity. This provides the highest policy level

underpinning the imperative for the universality of ICT in Uganda, as it is stated that *“the country cannot achieve the planned development targets if any sections of the population cannot exploit the opportunities provided by ICT access and usage.”*

To grow agriculture through digital services, UNCDF, with support from the government of Sweden, has partnered with Nilecom, Mezzanine, and Cordaid. The consortium aims to develop and scale-up digital agriculture solutions to improve efficiency, access and utilisation of actionable information, markets, management of payments and inventory. Acknowledging the critical role of farmer organizations, the project seeks to support cooperatives and producer organizations to perform better, thereby creating positive dividends for the 100,000 farmers (60,000 women and 40,000 men) by addressing bottlenecks in their service delivery as highlighted below.

Information access: lack of actionable and timely information caused by weak information-gathering tools means that farmer groups do not have visibility of their members, activities, and trends, which impedes service delivery.

Market access: Information asymmetries in agriculture often result in farmer groups not providing accurate data to potential buyers looking for produce. The lack of awareness of better markets due to limited access to such market platforms results in lower prices, creating a cycle of low returns and making it hard for the farmers to break out of economic hardship.

Inventory and payments management: inventory management practices regarding tracking, timely reporting and payment to farmers are inadequate. This erodes trust, which affects farmers’ interests and cash flow.

There are already some examples of how digital technologies can unlock new opportunities in agriculture in Uganda.

For instance, Mezzanine’s ConnectedFarmer solution implemented in various African countries is being adapted to the Ugandan market as “UgFarmer”, starting with the West Nile subregion. The solution aims to unlock the systemic constraints in the agricultural sector with the goal of improving the productivity of smallholder farmers and boosting the livelihoods of vulnerable communities. Connected Farmer is a digital platform that improves productivity, revenue, and resilience for small scale farmers in Africa by connecting them to information, inputs, credit, and buyers.

Mainstreaming gender in digital technology rollout

The UN Economic and Social Council (ECOSOC) defined the concept of gender mainstreaming as “the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes in any area and at all levels. It is a strategy for making the concerns and experiences of women as well as of men an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic, and societal spheres, so that both women and men benefit equally. The goal of mainstreaming is to achieve gender equality.”

Digital technologies can fundamentally change and improve development outcomes, especially in the rural communities where people are most excluded from public services and markets. In Uganda, the number of mobile network subscribers has increased from 40% of the population in 2010 to 57% in 2018, and while only 12.5% of the population used the internet in 2010, the figure stood at 23.7% in 2017. Mobile device ownership stood at 69% and 84% for women and men respectively in 2019 and 57% of the adult population had/used digital payments.

The potential of digital technology to improve the lives of Uganda’s rural poor is therefore significant, especially in the agricultural, education and health sectors.

Therefore, the project baseline study highlighted key inequalities among women and men in the client population with regards to access to feature phones and smartphones. Around 10 per cent of the people interviewed reported not owning a mobile phone. Women were the majority in the group, with seven out of ten not owning a mobile phone, compared to three out of ten men.

Earlier literature reviewed for the West Nile subregion found similar inequalities. The 2019 GSMA study “Bridging the Mobile Gender Gap for Refugees in Bidi Bidi Settlement in Uganda and Kiziba Camp in Rwanda” showed that 23 per cent of women in Bidi Bidi (Yumbe – West Nile Uganda) are less likely to have used a mobile phone in the last three months, while 47 per cent were less likely to have owned a mobile phone. Inequalities were found to extend beyond device ownership. Women’s phone usage is less frequent or less diverse than that of men, with women using mobile phones primarily for calling.

The UN 2030 Agenda of Sustainable Development envisions equity as a foundation of its core principle: 'No one left behind.' It focuses on extending sustainable development benefits to groups of the population that are routinely and structurally excluded. The approach overlaps with the key concerns of achieving gender equality and empowering women and girls because, within unequal gendered power relations, gender is often the trigger for social, political, cultural, and economic exclusion.

Inclusive innovation is a key workstream in the UNCDF global digital strategy "Leaving No One Behind in the Digital Era."

The aim is to promote inclusive digital economies, specifically in least-developed countries (LDCs), in support of the Sustainable Development Goals (SDGs). In Uganda, the strategy aims to leverage technology to provide at least one million people access to impactful solutions in finance, agriculture, health, education, and energy to improve their wellbeing and quality of life.

With a strong focus on women's empowerment and digital economy, UNCDF also launched, in 2020, the women's economic empowerment approach, called Women as Builders of the Digital Economy, which aims to decrease the digital divide for women and girls, use technology to improve women's economic opportunity and to help to transform women into the builders of emerging digital economies. This approach focuses on creating strategic partnerships at a global, regional, and country-level and complementing them with market facilitation and deep technical assistance to affect change on the ground to:

- Increase the number of women and girls that own a phone, can access/use the internet, and have the capability and autonomy to use it to empower their lives
- Increase the number of affordable digital and financial products that address the needs and challenges of diverse segments of women
- Leverage technology to increase access to finance and formalization of women-owned and managed SMEs.
- Use policy incentives and sex-disaggregated data to increase women's digital and financial autonomy by supporting governments to create a "coalition of the amenable" between public and private sector actors to increase the number of women in the workforce and leadership positions.

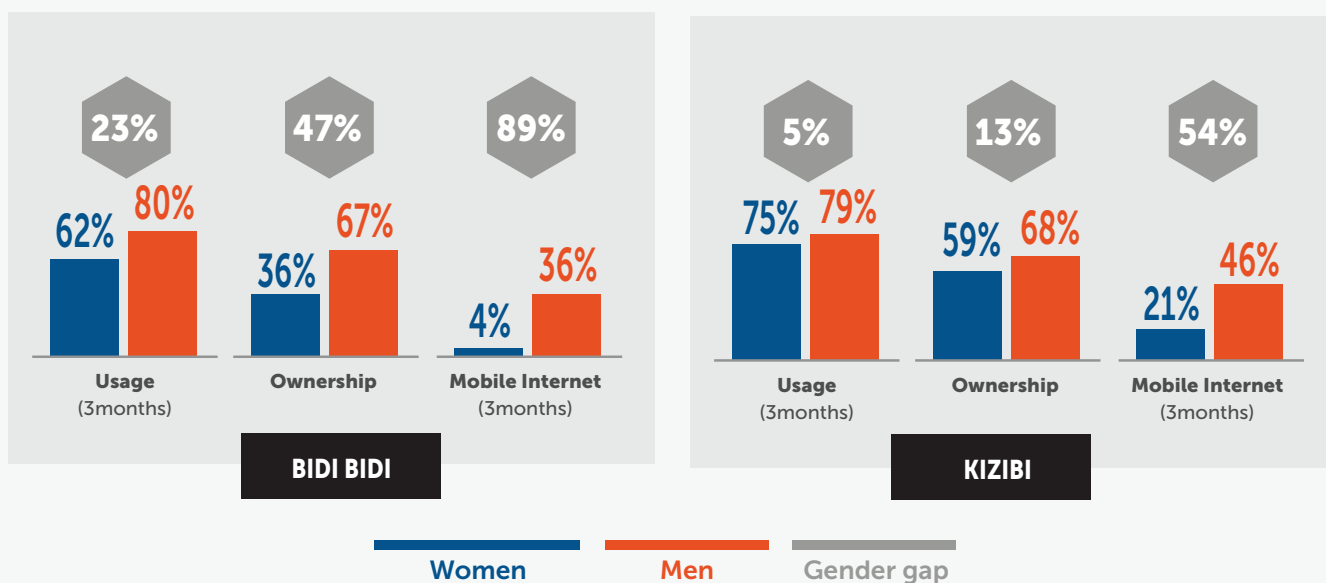
Underlying constraints to digital equality

GSMA's Mobile Gender Gap Report 2021 estimates that "women are 7% less likely than men to own a mobile phone and 15% less likely to use mobile internet." The earlier 2019 GSMA Gender report noted that despite nearly 1.7 billion women now owning a mobile phone in low-and middle-income countries (LMICs), the gender gap remains substantial. "As the reach of mobile has grown, it has become an increasingly powerful tool with which to deliver life-enhancing information, services and opportunities to millions who have not been able to access them before."

Relatedly, the Uganda Budget Monitoring and Accountability Briefing Paper (7/20) May 2020 (Ministry of Finance, Planning and Economic Development) notes that "the shift from conventional to ICT enabled platforms is a step in the right direction. However, it is steadily deepening the digital divide between the haves and have nots especially in the rural and underserved communities, women and youth." The paper advocates for providing the less privileged (rural communities, women, youths, and persons with disabilities) with the opportunity to live and participate meaningfully in digital connectivity by extending infrastructure, access to fast internet, ICT services, and literacy classes.

GSMA's case study "Bridging the mobile gender gap for refugees" on women's use of mobile phones in Bidi Bidi Refugee Settlement (Uganda) and Kiziba Refugee Camp demonstrates the value of closing the mobile gender gap. Among the key findings is lower mobile device ownership among women compared to men and the use of fewer functions for the few who own phones.

The mobile usage, mobile ownership and mobile internet gender gap in Bidi Bidi and Kiziba.



Base: all respondents (Bidi Bidi: 755 | Women: 449, Men: 306) (Kiziba: 727 | Women: 430, Men: 297)
Q: When was the last time you **used** a mobile phone or SIM card for any reason? (Within the last 3 months)
Q: Do you personally **own** a mobile phone? (Yes)
Q: Have you used the **internet on a phone** within the last 3 months?(Yes)

source: GSMA 2019 Report

To advance equality in digital innovation interventions, the consortium (UNCDF, Nilecom, Mezzanine, and Cordaid) set out to understand the factors underpinning the digital inequalities in Uganda through focus group discussions and key informant interviews during the first quarter of 2021.

The interviews sought to identify the key constraints women face while trying to access and use digital services and understand the lower device ownership among women. It acknowledged the importance of intentional actions to empower these marginalised women through economic independence tools, enabling them to play a more significant decision-making role in the family and community. The end goal was to ensure that both women and men could equally partake and take advantage of the digital agriculture opportunities in Uganda.

The survey comprised ten focus group discussions (six women groups, two men groups, and two mixed groups).

The following are the main research questions in the survey:

- 1 | Why do you think women in your community do not own a phone or have access to one?
- 2 | If they had a phone, what other challenges are they likely to encounter – e.g., will they access the SMS messages or be available for training on how to use the phone for the UgFarmer services?
- 3 | What information sharing channels could be used to ensure both women and men access the information (outside of mobile phones)?
- 4 | Anything else you would like to bring to our attention?

Responses showed a distinction between 'practical' and 'strategic' gender interests, which was first coined by Maxine Molyneux in 1985 and later adapted into the concept of gender needs and developed into a tool for gender planning (The Moser Framework) by Caroline Moser. Practical gender needs are those which, if met, would assist women in their current activities. And strategic gender needs, as Moser defines, are the needs which, if met, would enable women to transform existing imbalances of power between women and men. Women's strategic gender needs exist because of women's subordinate social status, and meeting these needs would help women improve their positions and achieve greater equality in society.

The table below shows key constraints identified and opportunities to address them.

Constraint	Planned Alleviating Strategies
<p>Affordability: Many women cannot afford the cost of purchasing a mobile phone which requires full payment of the cost of the phone</p> <p>High maintenance costs: Phone usage attracts expenses such as airtime, and while they may appear to be small amounts, can be significant for rural households, especially women.</p>	<p>UNCDF is working with market actors such as Mobile Network Operators to implement staggered layaway payments using a “pay go” model to enable rural customers to purchase phones paid overtime.</p> <p>UNCDF is also working with financial technology companies that, through VSLA (savings and loans groups) digitalization, enable rural savers to access credit from larger financial institutions using alternative credit scoring tools and linkages of VSLA to the mentioned institutions.</p>
<p>Lack of access to energy to charge phones: Lack of power to charge phones, especially for households living off the grid, makes it difficult for them to use phones.</p>	<p>UNCDF Energy Access Facility investment enables access to loans and grants to help clean energy companies expand the distribution networks while also testing layaway payment to make it easy to own the solar units they pay for overtime in smaller instalments. Staggered payments alone might not be sufficient considering women’s disproportionate influence in making budgeting /expenditure decisions in the household.</p> <p>Incidentally, UNCDF has partnered with telecom operators to expand connectivity such that beyond energy, 2G and 3G network is also available.</p> <p>Identifying where customers are located and what their energy needs are is important. To better understand the customers and market context, UNCDF, Columbia University, the Government of Uganda, and service providers are partnering to conduct a survey using big data analytics to map the current Uganda energy market and where the market is likely to grow for productive use.</p>
<p>Limited access to phone shops in rural areas: This means travelling long distances to have accessibility, yet other responsibilities like farm activities prevent women from doing so.</p>	<p>UNCDF is implementing a Digital Community Entrepreneur (DCE) model to increase access to digital services in rural locations, especially where such mobility constraints may exist.</p> <p>The model is premised on a network of young entrepreneurs with high business acumen and a support management structure to improve digital and financial literacy. DCEs sell products such as phones, airtime, data top-ups, and mobile money services in their communities on which they earn a commission.</p>
<p>Inadequate digital literacy skills: Most women do not have the basic skills to use mobile phone applications. Literacy levels are very low in rural areas and especially among women.</p>	<p>Currently, the DCEs work as role models or peer educators tasked with training and supporting farmers in using new digital solutions. While there is an effort to increase the number of female DCEs, the project continues to monitor that this results in more women customers and entrepreneurs.</p> <p>Some studies like GSMA’s “Harnessing the power of agents to drive female inclusion” have highlighted the disproportionate safety and harassment concerns related to mobile services experience, which, when combined with social norms that prevent women from visiting male agents unaccompanied, favour female DCEs.</p> <p>UNCDF has also identified a gap in content for digital literacy training and, in 2021, will develop a digital literacy training toolkit working closely with the government and the private sector. The toolkit, which will be publicly available, will be tested in 2022 to ensure both content and guidance for innovative delivery approaches in light of the Covid-19 pandemic restrictions and ambitions to reach last-mile communities.</p>
<p>Limited ‘use cases’: Some responders questioned mobile phones’ usefulness by mentioning that a phone is a luxury. Despite phones being a key part of some people’s lives, the lives of many women are not dependent on mobile devices.</p>	<p>Expanding the perception of the value-added by phones requires building use-cases or digital products that resonate with the needs of women smallholder farmers and women in rural and agricultural settings.</p> <p>For a while, rural phone use cases have revolved around phone calls, messages, radio, and mobile money with limited digital services relevant to their livelihoods. This has reinforced perceptions that phones are purely for communication.</p> <p>UNCDF, since 2019, has worked with private sector technology developers using human-centred design (HCD) principles to develop, adapt and scale new digital agriculture, health, and education products. As more of these services become available, perceptions of phones will likely change, and if coupled with customer education, support for women owning devices may increase.</p>

Next Steps

- 1 | Proactively understanding the underlying barriers for women to participate in the digital economy goes further than documenting research findings. It is also important to provide a foundation on which actions would be devised to reduce these inequalities. Some of the strategies like increasing number of female DCEs, increasing availability of digital technologies in closer proximity (addressing mobility barrier) especially leveraging the network of the digital community entrepreneurs, are already underway, and the consortium's next steps are to implement these actions, monitor progress and iteratively learn and adapt.
- 2 | Starting July 2021, UNCDF embarked on developing a client-led Digital Literacy training toolkit with interviews and focus group discussions conducted with women and men in Northern Uganda and female refugees in Nakivale and Imvepi settlements. The culmination of this will be a training resource that speaks to female and male client training needs. This will be the basis for training scheduled to start in Q1 2022, reaching 90,000 people, of whom 50% will be women (45,000).
- 3 | UNCDF seeks to carry out further research, especially on the weight that each constraint carries, which did not emerge clearly in the survey, as well as unpacking the social dynamics related to trust -- for example, whether men would trust their wives to use mobile phones more if they were using them to access services like agriculture, health, education for their children, and financial services.
- 4 | UNCDF is currently helping test a Social and Cultural Norms Diagnostic with CGAP, the Consultative Group to Assist the Poor. UNCDF Uganda has also volunteered to conduct the diagnostic to understand better the foundational barriers to women's digital and financial inclusion in the next 12 months.

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The views expressed in this publication are those of the author(s) and do not necessarily represent the views of UNCDF, the United Nations or any of its affiliated organisations or its Member States.

*The names of the respondents have been withheld for their safety.





LEAVING NO ONE BEHIND IN THE DIGITAL ERA

The UNCDF strategy 'Leaving no one behind in the digital era' is based on over a decade of experience in digital financial inclusion in Africa, Asia and the Pacific. UNCDF leverages digital finance in support of the Sustainable Development Goals (SDGs) to achieve the vision of promoting digital economies that leave no one behind. The goal of UNCDF is to empower millions of people by 2024 to use services daily that leverage innovation and technology and contribute to the SDGs. To achieve this vision UNCDF uses a market development approach and continuously seeks to address underlying market dysfunctions that exclude people living in the last mile.

ABOUT THE UN CAPITAL DEVELOPMENT FUND

The UN Capital Development Fund makes public and private finance work for the poor in the world's 46 least developed countries (LDCs). UNCDF offers "last mile" finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development. UNCDF's financing models work through three channels: (1) inclusive digital economies, which connects individuals, households, and small businesses with financial eco-systems that catalyze participation in the local economy, and provide tools to climb out of poverty and manage financial lives; (2) local development finance, which capacitates localities through fiscal decentralization, innovative municipal finance, and structured project finance to drive local economic expansion and sustainable development; and (3) investment finance, which provides catalytic financial structuring, de-risking, and capital deployment to drive SDG impact and domestic resource mobilization.

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