The Republic of Uganda

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Data Collection Survey on Refugees and Host Communities' Livelihood Improvement through Cotton Production Business in Uganda

Final Report

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Abbreviations

BF	Block-farming
CAO	Chief Administrative Officer
CDO	Cotton Development Organisation
CmiA	Cotton Made in Africa
CSR	Corporate Social Responsibility
EPOPA	Export Promotion of Organic Products from Africa
FAO	Food and Agriculture Organization
GADC	Gulu Agricultural Development Company
GOTS	Global Organic Textile Standard
HC	Host Community
IP	Implementing Partner
JICA	Japan International Cooperation Agency
JLIRP	The Jobs and Livelihoods Integrated Refugee Plan
LC	Local Council
LOCP	Lango Organic Cotton Project
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MOU	Memorandum of Understanding
NaSARRI	National Semi-Arid Resources Research Institute
NARO	National Agricultural Research Organisation
NDP III	National Development Plan III
NGO	Non-governmental Organisations
OPM	Office of the Prime Minister
PPA	Project Partnership Agreement
PRiDe	Promotion of Rice Development
RWC	Refugee Welfare Council
UBOS	Uganda Bureau of Statistics
UGCEA	Uganda Ginners and Cotton Exporters Association
UGX	Uganda Shilling
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
USA	United States of America
WFP	World Food Programme

Map[1]

Currency

1 Uganda Shilling = 0.0413 Japanese Yen (JICA Currency Rate by June 2024)

[1] Source: https://reliefweb.int/map/uganda/uganda-unhcr-presence-and-refugee-locations-27-feb-2019

Executive Summary

1. Summary of the Survey

1.1 Background and purpose

(1) Survey background

Uganda is a country that has a generous policy towards refugees. Since 2016, there has been a large influx of refugees from South Sudan and other countries bordering the Northern Region, and as of the end of March 2024, Uganda had received over 1.6 million refugees, mainly from South Sudan, the Democratic Republic of Congo, Burundi, and Somalia. As the situation in these neighbouring countries remains unstable, refugees stay in Uganda longer, and this need to continuously support refugees imposes a burden on Uganda.

The Northern Region, the site of the main refugee influx, was affected by civil war for about 20 years, from the 1980s to 2006. This region still has a high number of poor and vulnerable people compared to other areas in Uganda due to the war and delayed development. According to the 2019/20 Uganda National Household Survey, the poverty rate in the Northern Region is 35.9% compared to the national average of 20.3%. The Government of Uganda has adopted the National Development Plan III (NDP III), which promotes integrated development and opportunities for growth through agricultural activities, including for refugees and host communities (HCs). In addition, the Settlement Transformation Agenda II (STA II), which is an annex of NDP III, sets as one of its key pillars the improvement of the livelihoods of refugees and HCs.

In line with the Ugandan government policies described above, the Japan International Cooperation Agency (JICA) has been continuously implementing projects in the Northern Region to promote reconstruction from the civil war. These programs have aimed to strengthen the foundation for the Northern Region to move from the reconstruction to the development phase by expanding basic infrastructure such as roads, hospitals and schools, and by strengthening the administrative capacity of the local government. To improve livelihoods, the “Northern Uganda Farmers' Livelihood Improvement Project (2015)” was implemented to promote market-oriented agriculture through vegetable cultivation and marketing and to provide guidance to farmers to improve quality of life, which includes setting household goals, managing household economy, and nutrition improvement. This project is scheduled to run through 2026 in Phase 2 and is working to support farmers further to improve their livelihoods, but refugees are not included among the target farmers.

Considering the above situation, the cotton industry is being focused on as means of improving the livelihoods of small-scale farmers, including both refugees and HCs. Uganda has a high percentage of organic cotton cultivation because usually farmers cannot afford to use chemical fertiliser and pesticides, and Japanese trading companies procure the resultant organic cotton. As a study on cotton in the Northern Region, the “Feasibility Survey for Adding Value to Cotton Products with Organic Scouring Method (2016)” was conducted to identify the potential of the cotton industry in the region and its bottlenecks. Recently, the “Data Collection Survey on Refugee-related Business and Social Investment (2021)” was conducted to collect and identify basic information on the business ecosystem benefiting refugees. Furthermore, using the results of this Survey, information was exchanged with organisations interested in refugee-related private businesses, after which certain actors in the private sector expressed a strong interest in agriculture-related businesses, including cotton, in Northern Uganda.

Through the two surveys mentioned above and information exchange, it became clear that refugees and HCs have already been involved in the cotton industry as cotton producers, a part of the value chain. In addition, the industry is expected to continue to grow, and it was confirmed that cotton production and processing have the potential to become an industry that contributes to the livelihood of refugees.

In view of these circumstances, this Survey aims to further collect detailed information on the livelihood improvement of refugees and HCs through cotton production. This Survey utilises the results from the previous surveys and collects the latest information. It also aims to discuss and identify measures to involve both refugees and HCs in cotton production.

(2) Survey objectives

The Survey objectives are the following three points:

- Identify the actions and points to be considered for the development of the cotton industry in Northern Uganda by involving both refugees and small-scale farmers from HCs;
- Identify the measures needed to improve the competitiveness of the cotton industry; and
- Analyse how to facilitate the two points mentioned above, including approaches and points to be considered in implementation.

1.2 Survey method and targets

The Survey targeted mainly Kampala, the West Nile Sub-region and the Acholi Sub-region. The Survey collected information in different forms. Through the field survey, information was collected via interviews and the pilot activity - cotton production involving refugees and HCs. From Japan and Kampala, literature reviews and online interviews were carried out, and analysis of collected data, monitoring and follow-up of the field survey and pilot activity were also done.

2. Results

2.1 Current situation of refugees and HCs in the target areas

The West Nile Sub-region and the Acholi Sub-region of Northern Uganda, the main target areas of this Survey, are experiencing a large influx of refugees from the bordering Democratic Republic of Congo and South Sudan. Looking at the number of refugees in Uganda by district, as of the end of March 2024, Madi Okoro and Terego Districts, Adjumani District, and Yumbe Districts in the West Nile Sub-region are the top four districts hosting refugees. Moreover, these four districts alone account for over 640,000[2] refugees. Refugee settlements are located across six districts in the West Nile Sub-region and one district in the Acholi Sub-region.

Except for the Lobule Refugee Settlement in Koboko District, where the majority of refugees are from the Democratic Republic of Congo, the rest of the settlements in the West Nile and Acholi Sub-regions are dominated by refugees from South Sudan. Refugees in these sub-regions have increased rapidly since around 2016, when the security situation in South Sudan deteriorated, and as a result, the number of refugees has exceeded the original resident population in many of the HC Sub-counties, exerting a significant impact.

Regarding the living conditions and life of refugees, there are two major challenges: food shortages and limited access to land. Firstly, due to a lack of funding for the World Food Programme (WFP), the monthly food ration has been decreasing since February 2021. After 2023, prioritisation was introduced with consideration for the vulnerability of households, with refugee households in Uganda classified under Category 1 to 3. Category 3, which is self-reliant, indicates that people are living without any food assistance, yet the Survey team observed cases that household economic situations are not particularly stable.

Next, regarding access to land, the Ugandan government allocates approximately 30 m×30 m of land per refugee household in refugee settlements as a residential plot. Although refugees grow crops such as maize and cassava around their plots, it is difficult to produce sufficient quantities, and in many cases, they grow food only on a small scale. Access to land for cultivation has been a challenge. Many refugees

[2] Uganda Comprehensive Refugee Response Portal. UNHCR. https://data.unhcr.org/en/country/uga

rent a piece of land from landowners. Sizes vary, but the common size is about 0.25 to 1 acre. Some can get land for cultivation free of charge because of a relationship with their HC. For many refugees, rental fees are perceived to be expensive, and thus, it is difficult for them to access sufficient land for food production. Among refugees, some can engage in other means of livelihood, such as running a small store or restaurant, selling cookies, chapattis, or vegetables, driving a motorcycle as a taxi, sewing, or other small businesses, yet the proportion is minimal. Under these circumstances, productive activities are important, but as shown in the table below, the scale and opportunities are limited, and challenges exist.

Type	Size (place)	Challenges
Kitchen garden	Relatively small (residential plot)	・ Size is small for food production
Renting	0.25 to 1 acre (HC's land)	・ Cost for renting land ・ Distance from the residential area ・ Competition
Group activities (i.e. NGO, block-farming)	Large acres but sharing by group members	・ Distance from the residential area ・ Limited opportunity to join the activity

The relationship between refugees and HCs, as described above, is not just good, but also mutually beneficial. HC residents are reaping substantial benefits from the presence of refugees. As one HC resident put it, "the biggest benefit is the infrastructure that has been developed". The arrival of refugees has also brought an abundant agricultural labour force and easy access to cheap labour, leading to the development of markets, trading centres, and increased income from business.

2.2 Positioning of cotton and Cotton Value Chain in Uganda

(1) Positioning of cotton and current status of cotton industry in Uganda

Cotton is classified as one of the "Traditional Export Items" along with coffee, tea, and tobacco in trade statistics published by the Uganda Bureau of Statistics (UBOS). However, according to the latest statistics in 2021, cotton consistently ranks lowest among the four items in terms of export value over the past three years. It ranks 13th among agricultural products and contributes only 1.3% in terms of proportion, indicating that its position is not particularly high.

Cotton does not hold the status of a prioritised crop in the national agricultural policy. However, according to CDO, based on the National Planning Authority's NDP III formulated in 2019, cotton is featured under the "Agro-industrialisation" section and its key areas to be worked on are identified as "Production and Productivity "and "Value Addition". The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and CDO follow this understanding and plans the guidelines for policy development accordingly.

As mentioned above, while cotton does not hold an important status in terms of trade statistics or policy compared to other commodities, it still shows distinctive elements implying its past significance as an export crop from the colonial period, the 1920s, to around the country's independence in the 1960s, which are publicly determined buying prices, precise statistics, and quality control scheme and technical extension services through collaboration between government agencies and private enterprises.

Cotton-producing areas of Uganda are distributed across the Northern to Eastern parts of Uganda, and some parts of the Western. Therefore, ginneries which conduct the primary processing are also located around cotton production areas.

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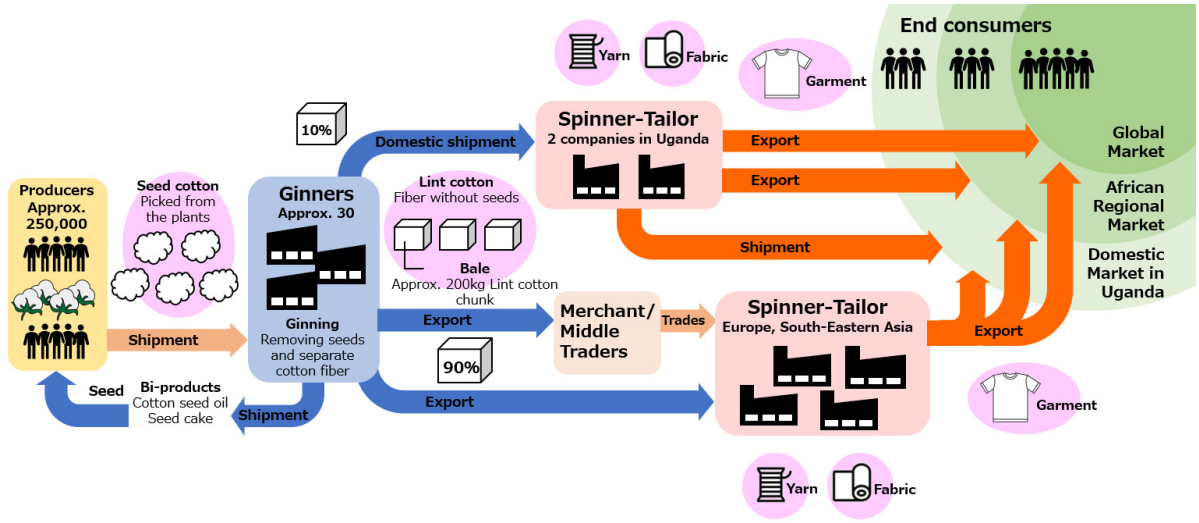
(2) Supply chain of Ugandan cotton

The supply chain of Ugandan cotton from producers to final consumers can be roughly outlined as follows:



More than 90% of the cotton produced in Uganda is exported as raw material (lint cotton)[3] to the global market, while the remaining 10% is sent to spinning, weaving, and garment manufacturing domestically. The final products, mainly clothing, are then distributed within the country, to the regional market within the African continent, and exported to other regions such as Europe to some extent. Additionally, in the supply chain from cotton producers to primary processing, there are different trading systems for organic and conventional cotton.

(3) Challenges in supply chain of Ugandan cotton

During discussions over agricultural policy, the term “value addition” is frequently mentioned. In the case of cotton, within the wide supply chain from raw material to final product, there is often debate on the necessity of not only exporting raw materials to the international market but also elevating processing stages domestically. This involves carrying out processes such as spinning, weaving, and sewing in addition to raw material production.

However, in terms of the scale of stakeholders, the number of agricultural producers engaged in raw material production is larger than the number of jobs created and the number of people who can benefit from the processing process. In addition, more than 90% of the cotton produced in Uganda is exported as raw material, but when applying the quality standards required by international markets, Ugandan cotton still has many quality issues.

Contamination is one of the most significant challenges in the valuation of Ugandan cotton in the global market, involving all stakeholders in the supply chain and representing issues rooted in the structure of the industry. Against this background, the Survey focused on improving the quality of the basic raw material, rather than adding value through processing. The report details the current status and issues related to cotton quality, as summarised in the table below.

[3] https://www.monitor.co.ug/uganda/business/markets/90-of-uganda-s-cotton-is-exported-says-uma--4379358

Current status and challenges of contamination control	
Challenges at the producer's level	The majority of contamination occurs in the temporary storage environment between the farms and the producers' residences.
Challenges in transportation and at the Buying points	Contamination often worsens at these points, since there is no filtering and removal of contaminations and the points are usually located in convenient parts of villages where many consumer goods and their packaging are scattered around.
Challenges at the ginneries level	Contamination cannot be completely eliminated.
Challenges of the government agencies	The CDO lab, located in their office, tests cotton samples gathered from ginneries all over the country and the results are recorded and analysed, but without further action to mobilise ginneries for improvement or setting shipping standards and stopping unqualified samples from being exported.
Current situation and challenges in the ginning operation	
Challenges at the ginneries level	Many of the machines in use are very old, including "roller gin" machines, which use two rotating rollers to pinch the fibre between them to remove the seeds. Worldwide, "saw gin" machines, which separate the seeds as if cutting the fibre with saw blade-like parts, are commonly used. Roller ginning is particularly dependent on the quality of cotton because it fails to remove foreign matter such as cotton leaves.

(4) Analysis of Ugandan Cotton Value Chain

This Survey also examined the value addition to cotton but confirmed that it is very difficult to add value to raw cotton at the producer level. Even for organic cotton, the premium is at most 10%, so it is difficult to say that significant value addition is being generated. It also confirmed that even if value addition is promoted at the spinning, weaving and sewing levels, it is very difficult for refugee and HC cotton producers to benefit from it. The most effective way for refugee and HC cotton producers to gain further income from cotton production is to manage the cultivation well and increase the yield. Therefore, rather than support for strengthening the value chain with a focus on processing, training in proper cultivation techniques and quality improvement for producers is more effective for improving producers' incomes.

2.3 Current Status of Cotton Production and Extension in target areas

(1) Extension System of Cotton

In the West-Nile and Acholi Sub-regions the Survey targeted, there are two extension systems for cotton production operated: one for conventional cotton under the Uganda Ginners and Cotton Exporters Association (UGCEA) and one for organic cotton by Gulu Agricultural Development Company (GADC), a ginnery that deals with organic and certified cotton. These extension services do not overlap but are independent and work on their lines. The similarity is the cascade extension system, in which staff are allocated at the District and Sub-county levels and front-line supervising staff in charge of several Sub-counties provide technical guidance to farmers.

The extension system is organised and covers a wide area.
According to interviews at CDO, the UGCEA extension system would be shifted to integration into the extension system under the MAAIF, where the general agricultural extension officer will be responsible for cotton extension. As for GADC, the extension system tended to function well when GADC was undertaking donor and other projects and utilising external resources. Still, it has become challenging to maintain the systems within GADC's budget. GADC is currently reorganising, temporarily reducing the scale of its operations and reorganising its structure.

(2) Advantages and disadvantages of cotton cultivation for farmers

The advantages and disadvantages of cotton cultivation for farmers, revealed from interviews with cotton farmers, are summarised as follows. Advantages are: 1) Production materials available on credit: “No initial capital required”, 2) Wide adaptability to soil: “Can be grown anywhere”, 3) High climate change resilience: “Can survive even in unfavourable weather”, 4) No damage from wild/domestic animals: “Not eaten by animals”, 5) Easy post-harvest management: “Does not rot”, 6) Guaranteed cash income: “Savings in the field”, and 7) No effort or cost required for selling products: “Easy to sell”.

Disadvantages are: 1) Yield reduction due to insect damage: “High prevalence of insect pests”, 2) Intensive labour required for weed and insect control: “Labour-intensive crop”, 3) Limited sales channels and conditions: “Limited marketing opportunities”, and 4) Lack of alternative use if failing to sell: “Non-edible”.

Cotton is very different from other agricultural products because it is bought whole, in bulk and in cash, and the buyer comes to the farmer's garden/resident to buy it. For this reason, farmers who have cultivated cotton in the past have appreciated these characteristics. Many of them have expressed a willingness to continue growing cotton, even if they are not fully satisfied with the sales price. The fact that farmers themselves do not have to carry out marketing activities and can get cash on-the-spot is a huge advantage.

On the other hand, cotton does not generate a very high profit per land unit, and it is difficult to generate sufficient income unless cotton is grown on a certain scale. Thus, it is desirable to cultivate cotton on a site of about one acre, or at least a quarter-acre of farmland. This is not a major obstacle for HC farmers who have easy access to sufficient land, but it is essential for refugees to have access to farmland that is sufficient for cotton cultivation. Therefore, unless block-farming schemes are introduced and enough land is made available to refugees, it will be difficult for refugees to engage in cotton production.

(3) Comparison of conventional and organic cotton production

The average cotton yield per acre for organic cotton farmers interviewed was 454.48 kg (N=21) and 354.39 kg (N=25) in the 2022/23 and 2023/24 seasons respectively. This is slightly higher or comparable to the average cotton yield of conventional farmers for the same years, which was 372.00 kg and 351.05 kg. Additionally, the average cultivation area per household was 1.34 acres for organic cultivation, which was smaller than the 1.70 acres of conventional cultivation. Usually, organic farming tends to yield lower per-unit-area compared to conventional methods. However, in cotton cultivation in the region, this trend was not observed. There were cases where organic cultivation yielded higher than conventional methods. This is considered to be mainly due to the following three factors: 1) Both conventional and organic cultivation are practiced without fertiliser application, 2) Both conventional and organic cultivation face difficulties in controlling insect pest damage, and 3) Organic cotton farmers practice field and crop management more carefully and intensively.

(4) Possibility of cotton production by refugees and HCs

Cotton does not generate a very high profit per land unit, and it is difficult to generate sufficient income unless cotton is grown on a certain scale. Thus, it is desirable to cultivate cotton on a site of about one acre, or at least a quarter-acre of farmland. This is not a major obstacle for HC farmers who have easy access to sufficient land, but it is essential for refugees to have access to farmland that is sufficient for cotton cultivation. Therefore, unless block-farming schemes are introduced and enough land is made available to refugees, it will be difficult for refugees to engage in cotton production.

The choice between organic or conventional cotton production is also determined by the availability of access to extension agents of the organic ginnery, such as GADC. In areas that are difficult to reach with GADC services, it would be possible to grow and sell conventional cotton by accessing UGCEA extension agents who promote conventional cotton cultivation, or agents who have been growing cotton

for a long time and buying for ginneries. The table below shows some points to consider when refugees and HCs engage in cotton production.

Points to be considered
Refugees • It is essential to secure enough farmland, including land needed for food production. Rather than renting land from HC residents, it is more suitable for using land provided by schemes such as block-farming. It is easier to receive technical guidance from outside sources if production is done collectively through a block-farming scheme. • It is important to indicate several farming options on how to balance food production with cash crop production such as cotton. • Cotton can only be harvested once a year, so it is less efficient use of farmland than crops that can be harvested twice a year. • In the case of cotton cultivation, seeds and pesticides are provided on credit, which can reduce the initial investment. This is an advantage for refugee households that have difficulties spending cash.
HC • Farmers who have no constraint regarding access to relatively large farmland are suitable. In some refugee settlements, cotton production has been practised by HCs for some time. Starting cotton production with such farmers will make the introduction relatively easy. • Combining cotton with other cash crops may contribute to household income stability. Income from cotton is easy to allocate for large expenditures (e.g., school fees or Christmas spending) due to its whole cash purchase. Some farmers call this “field savings”.
Organic cotton production • In the West Nile and Acholi Sub-regions, only GADC deals in organic cotton, so it is necessary to contact a GADC extension officer to register as organic cotton producers and receive field inspections. Without this process, there is no premium to be added as organic cotton. • Compared to conventional cotton production, organic cotton production requires more diligent management. It is also generally recognised that organic cotton has lower yields. But this Survey confirmed that the yield levels are almost the same due to no fertiliser application and intensity of management. • Natural pesticides can be prepared from free or cheap materials available nearby, such as neem and chilli, and require less cash investment compared to chemical pesticides used for conventional cotton production.

2.4 Pilot Activity

(1) Outline of the pilot activity

The purpose of this pilot activity was to examine the potential of cotton production to improve the livelihoods of both refugees and HCs and to understand practical procedures and challenges of block-farming through implementing similar activities.

Twenty people from each of the refugees and HCs (40 people in total) participated in this pilot activity. Four landowners participated as HC beneficiaries. Caritas, an Arua-based NGO which has a branch in Yumbe, managed and monitored the activities as the subcontractor. GADC provided technical guidance on organic cotton cultivation and purchased the cotton harvested from the pilot farm. Cotton cultivation in the pilot activity began in July 2023, immediately after the start of the Survey, and continued until the harvest in February 2024. As a result of discussions with stakeholders, and in light of the decrease in food rations from the WFP, the crops to be grown in the pilot activities included maize, a food crop, in addition to cotton (organic cotton cultivation).

(2) Results of pilot activity

Out of 40 members, 33 (14 refugees and 19 HCs) completed the activity. The dropouts left the group due to individual reasons e.g., sickness. Non-dropout members harvested around 30kg and acquired

approximately UGX49,000 on average through the sales to GADC. The selling price was UGX 1,700 per kg. Farmers generally expressed satisfaction with pilot activities. A combination of cash and food crops and free land access are highly appreciated, and are generally positive on cotton production mainly because it brings cash on-hand at once and can be kept safely in the field. Refugees and HC farmers are well collaborated during the cultivation (e.g., group sowing). The pilot offered an opportunity to get to know each other among members. Challenges on cotton production in the pilot activity are land opening, late sowing, small plot size (0.15 acre per person), pests (e.g., cotton strainers), and uneven land conditions among plots (e.g., water logging, soil fertility). Measures to address these challenges were summarised in the report as lessons learned.

(3) Lessons learned from the pilot activity.

The pilot activity offered technical insights into understanding points for consideration on block-farming involving refugees and HCs. Details of lessons learned are summarised in the report and following section, at "Points of considerations about a block-farming scheme" under the section 3. Recommendation.

3. Recommendation

Securing enough food is crucial for refugees to maintain a minimum standard of living, and to ensure this, the refugees need to get access to farmland in or around the refugee settlements to produce their food. Since most of the refugees are facing food shortages, it is crucial to promote the clearing of new large farmland sites under a transparent policy to ensure minimum access to farmland for more refugees. Under this situation, block-farming schemes could be very effective. It is also important to provide support for their agricultural activities to help them produce more food.

For refugees, it is difficult to cultivate cotton on a 1-acre site, which is the average cultivation area of one Ugandan conventional cotton farmer since the refugees have limited access to larger farmland. Under the block-farming scheme, it is expected that about 1 acre of land might be allocated. Therefore, taking into account the balance between food production and cash crop production on 1 acre of farmland, a cost-benefit model is presented in the table below for organic cotton cultivation on 0.25 acres (1/4 of the allocated land).

According to this assumption, approximately UGX 200,000 income can be expected. This amount might not be sufficient for a refugee household, but it may become a reliable cash income source for such households. On the other hand, if the refugees cultivate organic cotton, it is necessary for them to sign contracts with a ginnery that handles organic cotton, such as GADC. It is also necessary to secure a certain number of producers and production volume in their area, since the ginnery would consider the efficiency of contracting procedures and arrangements of buying cotton. In this respect, it would be easier for the ginnery to deal with the situation if a certain number of producers could be secured within the same block farm.

Possible cooperation and available JICA schemes

This part proposes possible cooperation and corresponding JICA schemes for JICA's future support to improve the livelihoods of refugees and HCs through food and cotton production and other activities. Cooperation processes can be divided into two main stages.

Considering the present refugee situations, the critical and urgent issue is land access for food and cash crop production. As the first stage of the cooperation, it is necessary to develop the hard components, such as establishing block farms and constructing necessary facilities, to secure the land access for refugees. Support for block-farming operation can then be provided to ensure that refugees and HCs work together to cultivate food and cash crops. For this first stage, the "Grants in Association with International Organisation" is considered as an appropriate scheme under JICA, since it can support not only the hard components, such as construction, but also the soft components, such as organising farmers'

groups and providing technical guidance for agricultural activities. It is necessary to work with international organisations, such as United Nations High Commissioner for Refugees (UNHCR) and Food and Agriculture Organization (FAO), to formulate the project for establishing block farms and promoting block-farming[4].

As the second stage, further support for livelihood improvement is considered as a means of realising a more stable life for refugees, once refugees can get access to farmland at a certain level and the current crisis situation can be mitigated. In this second stage, it is assumed that the main approach will be technical assistance for livelihood improvement activities, and therefore the Technical Cooperation Projects can be considered as an appropriate scheme. In Technical Cooperation Projects, various technical guidance will be provided not only for cash crop production but also for household management aspects for refugees and HCs, which include food stock and cash management, nutrition improvement, gender, vulnerable group considerations, and healing trauma. This technical cooperation may contribute to improving the situations of refugee and HC households in a comprehensive manner. It is important to fully utilise the knowledge of the JICA Technical Cooperation Projects for livelihood improvement support currently being implemented in Northern Uganda. The table below shows possible project contents for the future.

Implementation stage	First stage	Second stage
Objective	Improvement of food security and cash crop production	Livelihood improvement through cash crop production and improvement of household management
Implementation timing	Two to three years from the present	After achieving improvement of food security
Possible JICA scheme	Grants in Association with International Organisation	Technical Cooperation Project
Implementing agencies	• Ugandan Government (Office of Prime Minister, Ministry of Gender, Labour and Social Development, Ministry of Agriculture, Animal Industry and Fisheries, District Local Governments, etc.) • Supporting organisations (UNHCR, FAO, etc.)	• Ugandan Government (Office of Prime Minister, Ministry of Agriculture, Animal Industry and Fisheries, District Local Governments, etc.) • Supporting organisations (JICA, FAO, etc.)
Beneficiaries	Refugees and HCs	Refugees and HCs, Agricultural Extension Officers, Community Development Officers, Private company staff
Support contents	• Coordination among stakeholders • Block farm establishment and facility construction • Selection of beneficiaries and land allocation • Support for food production • Promotion of collaboration between refugees and HCs • Formation of management structure for operation and maintenance for block farms • Technical support for cotton production • Inclusion of vulnerable people	• Technical support for cash crop production and marketing (e.g., cotton, rice and vegetables, etc.) • Cash management • Food stock management • Nutrition improvement • Gender consideration • Inclusion of vulnerable people • Healing trauma
Remarks	• While the emphasis will be on food	• Regarding livelihood improvement

[4] The concept note prepared by the study team on this scheme is attached as Annex 4.

	production, cash crops such as cotton will also be cultivated to meet the cash needs of the refugees.	support, the experiences of the JICA Technical Cooperation Projects currently underway in Northern Uganda needs to be fully utilised.

Points of considerations about a block-farming scheme

The Survey confirms that when establishing block farms and implementing block-farming schemes, a number of points need to be taken into account. The table below summarises these considerations.

Processes	Points for consideration
Coordination among stakeholders	• Discussions and coordination among stakeholders in refugee settlement operations, including Office of the Prime Minister (OPM), district and sub-county governments, international organisations such as UNHCR, NGOs and development partners. • Securing enough time for coordination due to time-consuming processes. • Involvement of Implementing Partners (IPs) in the coordination if IPs provide support for block-farming. • Completion of the contract processes with IPs before starting coordination.
Selection of land	• Sharing a clear picture of the land selection process among the stakeholders. Reviewing refugee settlement maps and land use masterplans, and identifying the candidate sites strategically before starting discussions with landowners. • Consultations with OPM, other stakeholders and candidate landowners identified from the above-mentioned process. Identifying candidate sites by considering the type of land ownership (individual- or family-owned) and willingness of the landowners to lease their land. • Prioritisation of candidate sites through field surveys to measure the area available for clearing and to confirm the conditions of access roads from refugee dwellings, existing vegetation, soil type, and situations of neighbouring HCs. • Negotiation with landowners of the prioritised sites, obtaining their consent, and preparation and signing of land lease MOU (Memorandum of Understanding). • Consideration for ensuring the landowner benefits (e.g., if there is external support such as training or material distribution, they can benefit from this as well, or a part of the land to be cleared can be reserved for landowners).
Land-clearing	• Ensuring sufficient time for land-clearing, since there are few contractors in the Northern area who handle heavy duty machinery for land-clearing and it takes time to sort out problems such as machinery breakdowns. • For environmental consideration, instructions to contractors to leave bigger trees when clearing land.
Facilities	• Construction of facilities such as wells for potable water, shelters, toilets and storage to be considered if budget is available.
Selection of beneficiaries and points for consideration	• Establishing a system to promote participation of vulnerable refugees and female-headed households who are often unable to engage in farming at distant farmland due to caring for their children (e.g., mutual assistance through grouping). • Consideration for the proportion of participants from refugee and HC sides (e.g., 50:50, or more refugee participants to improve food security). • Fair and transparent selection processes involving Local Councils (LCs) and Refugee Welfare Councils (RWCs) with clear selection criteria. • Explanation of detailed arrangements to the participants in advance and confirmation of their consent to reduce drop-out rates.
Distribution of land	• Measures to ensure fairness (e.g., lottery). • Mixing the land of refugees and HC farmers, instead of separating them, to build better relationships.
Support for farming activities	• Distribution of minimum required materials (e.g., seeds). • Guidance regarding farm plan development to increase self-reliance.

Processes	Points for consideration
	• Training in cultivation techniques. • Consideration of support for vulnerable groups (e.g., promoting grouping and mutual support).
Conflict resolution / facility operation and maintenance	• Selection of leaders of both the refugee and HC sides to establish a system for conflict resolution and to maintain an environment in which all stakeholders could discuss issues as soon as they arise. • Strong involvement of LCs and RWCs to handle disputes amicably (e.g., damage caused by livestock, theft of crops, etc.). • Establishment of block farm users' associations for relatively large block farms, preparation of by-laws and organisation of sub-committees, such as security, conflict resolution, facility maintenance and management, support for vulnerable groups, sanitation, environment, etc.
Environmental considerations	• Implementing activities to recover the trees removed during land-clearing (e.g., tree-planting around block farms).

1. Summary of the Survey

1.1 Background and purpose

(1) Survey background

Uganda is a country that has a generous policy towards refugees. Since 2016, there has been a large influx of refugees from South Sudan and other countries bordering the Northern Region, and as of the end of March 2024, Uganda had received over 1.6 million refugees, mainly from South Sudan, the Democratic Republic of Congo, Burundi, and Somalia. As the situation in these neighbouring countries remains unstable, refugees stay in Uganda longer, and this need to continuously support refugees imposes a burden on Uganda.

The Northern Region, the site of the main refugee influx, was affected by civil war for about 20 years, from the 1980s to 2006. This region still has a high number of poor and vulnerable people compared to other areas in Uganda due to the war and delayed development. According to the 2019/20 Uganda National Household Survey, the poverty rate in the Northern Region is 35.9% compared to the national average of 20.3%. The Government of Uganda has adopted the National Development Plan III (NDP III), which promotes integrated development and opportunities for growth through agricultural activities, including for refugees and host communities (HCs). In addition, the Settlement Transformation Agenda II (STA II), which is an annex of NDP III, sets as one of its key pillars the improvement of the livelihoods of refugees and HCs.

In line with the Ugandan government policies described above, the Japan International Cooperation Agency (JICA) has been continuously implementing projects in the Northern Region to promote reconstruction from the civil war. These programs have aimed to strengthen the foundation for the Northern Region to move from the reconstruction to the development phase by expanding basic infrastructure such as roads, hospitals and schools, and by strengthening the administrative capacity of the local government. To improve livelihoods, the “Northern Uganda Farmers' Livelihood Improvement Project (2015)” was implemented to promote market-oriented agriculture through vegetable cultivation and marketing and to provide guidance to farmers to improve quality of life, which includes setting household goals, managing household economy, and nutrition improvement. This project is scheduled to run through 2026 in Phase 2 and is working to support farmers further to improve their livelihoods, but refugees are not included among the target farmers.

Considering the above situation, the cotton industry is being focused on as means of improving the livelihoods of small-scale farmers, including both refugees and HCs. Uganda has a high percentage of organic cotton cultivation because usually farmers cannot afford to use chemical fertiliser and pesticides, and Japanese trading companies procure the resultant organic cotton. As a study on cotton in the Northern Region, the “Feasibility Survey for Adding Value to Cotton Products with Organic Scouring Method (2016)” was conducted to identify the potential of the cotton industry in the region and its bottlenecks. Recently, the “Data Collection Survey on Refugee-related Business and Social Investment (2021)” was conducted to collect and identify basic information on the business ecosystem benefiting refugees. Furthermore, using the results of this Survey, information was exchanged with organisations interested in refugee-related private businesses, after which certain actors in the private sector expressed a strong interest in agriculture-related businesses, including cotton, in Northern Uganda.

Through the two surveys mentioned above and information exchange, it became clear that refugees and HCs have already been involved in the cotton industry as cotton producers, a part of the value chain. In addition, the industry is expected to continue to grow, and it was confirmed that cotton production and processing have the potential to become an industry that contributes to the livelihood of refugees.

In view of these circumstances, this Survey aims to further collect detailed information on the livelihood improvement of refugees and HCs through cotton production. This Survey utilises the results from the

previous surveys and collects the latest information. It also aims to discuss and identify measures to involve both refugees and HCs in cotton production.

(2) Survey objectives

The Survey objectives are the following three points:

- Identify the actions and points to be considered for the development of the cotton industry in Northern Uganda by involving both refugees and small-scale farmers from HCs;
- Identify the measures needed to improve the competitiveness of the cotton industry; and
- Analyse how to facilitate the two points mentioned above, including approaches and points to be considered in implementation.

1.2 Survey targets

The Survey targeted mainly Kampala, the West Nile Sub-region and the Acholi Sub-region. Table 1 summarises the interviewed targets under this Survey.

Table 1: Surveyed institutions and target groups

Target Category	Institutions and Groups
Central Government	Department of Refugees under OPM (Office of the Prime Minister), CDO (Cotton Development Organisation), NARO (National Agricultural Research Organisation), NaSARRI (National Semi-Arid Resources Research Institute)
Local Government	CAO (Chief Administrative Officer) and officers in charge of refugee reception in the target areas, Production Offices (mainly the District Production Officer and other relevant officers)
Refugee Settlement	OPM's local sub-offices (Department of Refugees: DoR, Refugee Desk Officer: RDO, Settlement Commandant: SC), SC in charge of Livelihood Sector Working Group within refugee settlement, representatives of the Refugee Welfare Council (RWC 1-3) who are elected within the refugee settlement, ordinary refugees
HC	Village Chiefs (Local Council: LC1), Parish Chiefs (LC2), Sub-county Chiefs (LC3), HC landowners, ordinary farmers, farmers cultivating cotton near refugee settlements
Cotton Production (Organisation)	UGCEA (Uganda Ginners and Cotton Exporters Association Ltd), Extension officer for conventional cotton[5] under UGCEA, GADC (Gulu Agricultural Development Company), extension officer for organic cotton under GADC
Cotton Production (Farmers)	Cotton farmers (conventional and organic cotton), Refugees and HC farmers under a pilot activity of this Survey
Cotton Processing and Sales	GADC in Gulu, Rwenzori Cotton Ginners in Nebbi, MMP Agro and Agri Exim in Lira, Fine Spinners (spinning, weaving and sewing company), organic cotton certifiers (abroad)
UN Agencies	UNHCR (United Nations High Commissioner for Refugees) - livelihood focal person in Kampala, Arua Sub Office, Yumbe Field Office, Adjumani Sub Office, etc., FAO (Food and Agriculture Organization) in Kampala, WFP (World Food Programme) in Arua and Adjumani
NGOs (Non-governmental Organisations)	Organisations with experience as Implementing Partner (IP) within refugee settlements (i.e., IRC, CEFORD, Marian Brothers) and Caritas Arua Diocese (a sub-contracting company for pilot activity under this Survey)

[5] Cotton that is not certified as organic cotton

1.3 Survey methods and pilot activity

The Survey collected information in different forms. Through the field survey, information was collected via interviews and the pilot activity - cotton production involving refugees and HCs. From Japan and Kampala, literature reviews and online interviews were carried out, and analysis of collected data, monitoring and follow-up of the field survey and pilot activity were also performed. Here are the details of each component.

(1) Survey in Japan (Kampala)

In the literature review, the Survey team carefully read through past survey reports, checked related information on the Internet, and made efforts to obtain associated materials. In addition, efforts were made to confirm the availability of statistical data and to understand the current situation regarding refugee settlements and cotton cultivation in Uganda. Online interviews were conducted to gather information and specific examples of cotton certification systems and traceability from European organisations.

Regarding the pilot activity, the Survey team handled the following items from Japan or Kampala: 1) preparation of a pilot subcontracting project, including identification of Implementing Partners ("IPs") with experience in block-farming[6] in refugee settlements in Northern Uganda; 2) selection of an IP for the pilot activity under this Survey and a contract agreement with a subcontractor; 3) monitoring and follow-up on the pilot activity implemented by the subcontractor.

(2) Field survey in Uganda

Information was gathered mainly through interviews with relevant parties during the field survey. In particular, for refugee-related surveys, the Survey team interviewed officials of the Refugee Welfare Council ("RWC"), recognised as a key informant, as well as Ugandan administrative officials and local politicians (Village and Sub-county Chiefs), to first understand the overall situation, and then interviewed individual refugees and HCs in greater detail about their current living conditions.

After grasping an overall picture from key informants, the Survey team interviewed individual refugees and HCs for a more detailed picture. The Survey team employed qualitative data collection methods. While gathering information from refugees and HCs, the Survey team made the best efforts to eliminate biases in the information by, for instance, cross-checking obtained facts with additional interviewees who could provide information from different angles. In this way, the Survey team was able to compare and ascertain the facts collected from different interview targets.

A survey on cotton cultivation was initiated after September 2023, during the cotton growing season. The Survey team found little reliable data during literature reviews on cotton production and extension systems in Northern Uganda. Therefore, as much as possible, the Survey targeted different levels of actors who play roles in cotton production, namely cotton growers at individual and institutional levels, as well as extension agents of conventional and organic cotton. By taking the survey period from the cotton flowering period to harvesting time, the Survey team aimed to collect practical data on cotton production from actual cotton fields. Other interviews targeted research organisations, including the National Agricultural Research Organisation (NARO) and National Semi-Arid Resources Research Institute (NaSARRI), as well as organisations like Uganda Ginners and Cotton Exporters Association Ltd. (UGCEA) and Gulu Agricultural Development Company (GADC), as key actors in cotton industry.

Different levels of actors were interviewed regarding the cotton value chain and business and marketing surveys, from farmers growing cotton to organic cotton certifiers in Europe. Throughout the survey

[6] Collective farms established in refugee settlements and neighbouring areas, often with both refugees and HCs engaged in agricultural activities. In many cases, the IPs support agricultural production. See detailed information in "2.5 Issues related to refugee land access and livelihoods activities" and "7.1 Specific examples of block-farming."

period, data collection and interviews covering this survey area continued, and results from the pilot activity were also utilised for this analysis.

Between February and March 2024, several reporting sessions were held. The workshop in Yumbe District was conducted by inviting stakeholders around the Bidibidi Refugee Settlement where the Survey had the pilot activity. Following the workshop, the Survey team had meetings in Kampala with OPM, CDO and UN agencies (UNHCR and FAO) to report the survey results and exchange opinions.

(3) Pilot activity

The Survey conducted a pilot activity (group cotton and food production by HC farmers and refugees) to clarify the advantages and challenges in implementing a such scheme. The results and lessons learned from the pilot activity were utilised to analyse strategies, approaches and points for consideration in implementing similar activities.

1.4 Survey schedule

The survey schedule is shown in the figure below. The Survey was conducted both from Japan and in Uganda. Field surveys were mainly from Kampala, the West Nile Sub-region and the Acholi Sub-region.

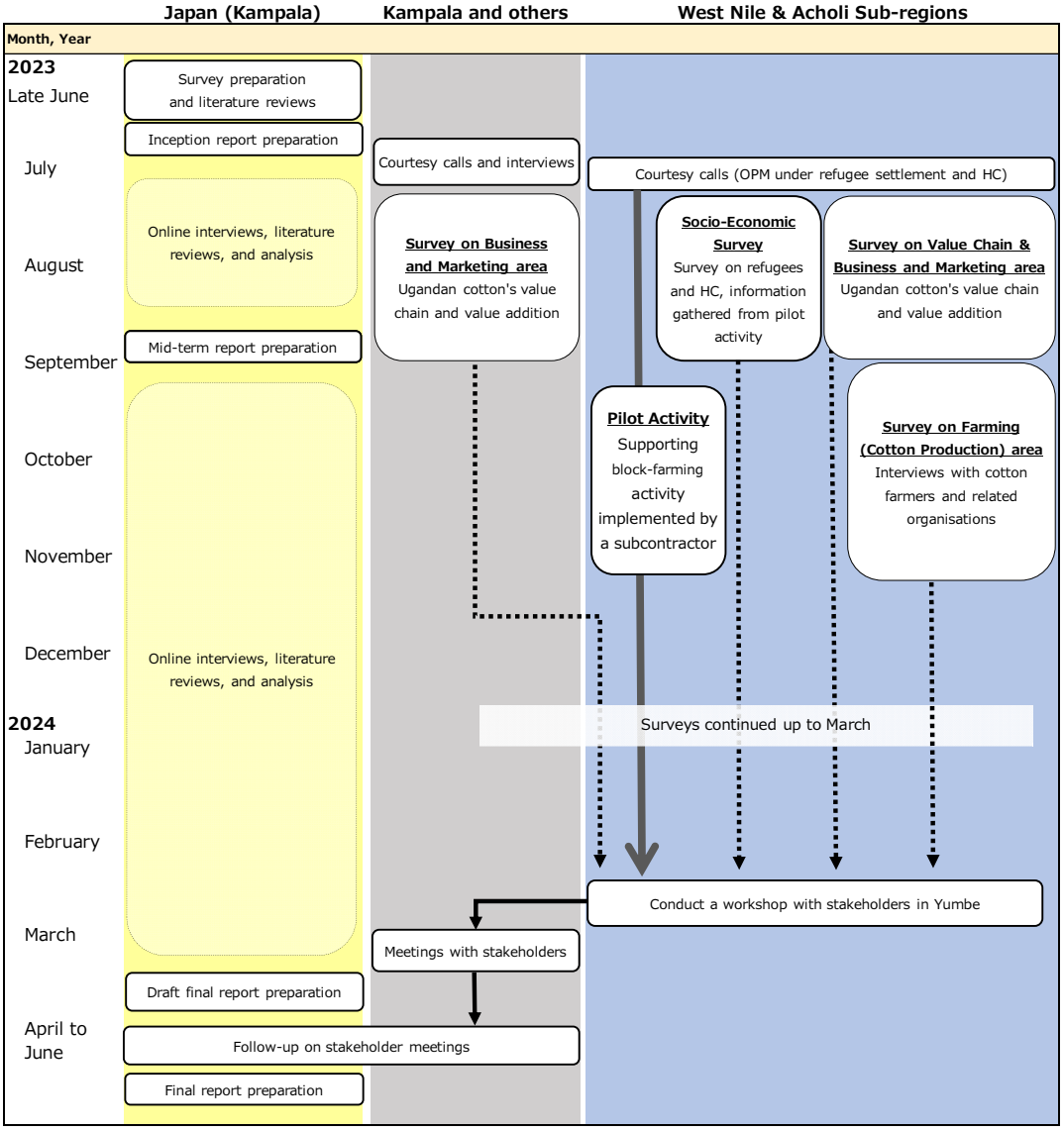


Figure 1: Survey schedule

2. Current Situation of Refugees and Host Communities

2.1 Situation of refugees in the target area

The West Nile Sub-region and the Acholi Sub-region of Northern Uganda, the main target areas of this Survey, are experiencing a large influx of refugees from the bordering Democratic Republic of Congo and South Sudan. Looking at the number of refugees in Uganda by district, as of the end of March 2024, Madi Okoro and Terego Districts, Adjumani District, and Yumbe Districts in the West Nile Sub-region are the top four districts hosting refugees. Moreover, these four districts alone account for over 640,000[7] refugees. Refugee settlements are located across six districts in the West Nile Sub-region and one district in the Acholi Sub-region (see Figure 2).

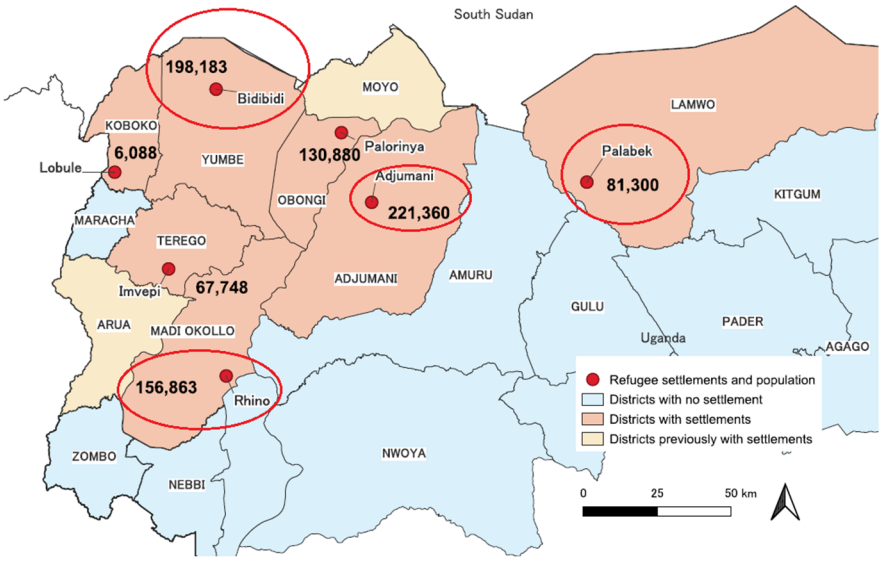


Figure 2: Refugee settlements in the West Nile and Acholi Sub-regions and the refugee populations in each settlement[8] (The four areas framed in red are the sites covered by this Survey)

Except for the Lobule Refugee Settlement in Koboko District, where the majority of refugees are from the Democratic Republic of Congo, the rest of the settlements in the West Nile and Acholi Sub-regions are dominated by refugees from South Sudan. Refugees in these sub-regions have increased rapidly since around 2016, when the security situation in South Sudan deteriorated, and as a result, the number of refugees has exceeded the original resident population in many of the HC Sub-counties, exerting a significant impact.

Regarding the living conditions and life of refugees, there are two major challenges: food shortages and limited access to land. Firstly, due to a lack of funding for the World Food Programme (WFP), the monthly food ration has been decreasing since February 2021. After 2023, prioritisation was introduced with consideration for the vulnerability of households, with refugee households in Uganda classified under Category 1 to 3 (see Section 2.4.4 for details). Category 3, which is self-reliant, indicates that people are living without any food assistance, yet the Survey team observed cases that household economic situations are not particularly stable.

[7] Uganda Comprehensive Refugee Response Portal. UNHCR. https://data.unhcr.org/en/country/uga
The data for Madi-Okollo and Terego Districts are presented together because Rhino Camp and Imvepi Refugee Settlements were established before the two Districts were divided into two. Thus, UNHCR has presented the data for the two Districts as one.
[8] Uganda Comprehensive Refugee Response Portal. https://data.unhcr.org/en/documents/details/107753

Next, regarding access to land, the Ugandan government allocates approximately 30 m×30 m of land per refugee household in refugee settlements as a residential plot. Although refugees grow crops such as maize and cassava around their plots, it is difficult to produce sufficient quantities, and in many cases, they grow food only on a small scale.

Access to land for cultivation has been a challenge. Many refugees rent a piece of land from landowners. Sizes vary, but the common size is about 0.25 to 1 acre. Some can get land for cultivation free of charge because of a relationship with their HC. For many refugees, rental fees are perceived to be expensive, and thus, it is difficult for them to access sufficient land for food production. Some refugees have benefited from participating in block-farming (see Section 2.3.1 for details) to produce food and supplement their food rations. However, despite accessing land, challenges are frequently reported as being the distance to the farm and lack of drinking water and shelters.

Thus, refugees face a harsh living situation, mainly due to lack of easy access to food and land. Concerned that the situation will continue to deteriorate, an increasing number of refugees believe that they have no choice but to return to South Sudan even though its security situation remains unstable. Some refugees testified that they were faced with making the difficult decision of either returning to South Sudan or continuing to endure harsh living conditions in the refugee settlements in Uganda.

2.2 Policies for refugees and HCs

Uganda has a generous policy for refugees. According to United Nations High Commissioner for Refugees (UNHCR), Uganda is Africa's largest refugee-hosting country[9], hosting over 1.6 million[10] people from South Sudan (57%), the Democratic Republic of the Congo (32%), Somalia (3%) and Burundi (3%). The Ugandan government, international organisations (mainly under the UNHCR), and NGOs from around the world are working together to respond to the large influx of refugees and support their lives in Uganda. The rights of refugees are stated in the 2006 Refugee Act, which includes the rights of refugees to work, find employment, establish businesses, move around freely within the country, and live in refugee settlements. This allows refugees to enjoy movement within the refugee settlement and receive services such as education and health. This generous policy is influenced by the history of the civil war within Uganda, which in the past caused many Ugandans to become refugees and flee to neighbouring countries. It was stated by HC members that “There was a time when we were refugees ourselves. It is normal to help each other in times of need”, which highlights how the sense of mutual assistance is deeply rooted in the people of HCs in Uganda.

On the other hand, implementing such a permissive refugee policy simultaneously places a heavy burden on those who have hosted refugees. A rapid influx of refugees from South Sudan to Northern Uganda since 2016 is a particular example. When the large influxes were happening, the development of living conditions in refugee settlements could not keep pace, and refugees had to rely on the HCs’ public services, such as schools and healthcare facilities, for survival. As a result, the HCs that accepted refugees needed help to adequately access social services like schools and hospitals, leading to complains towards refugees. Recognising this situation, it became necessary to support not only refugees but also the HCs along with appropriate policies. Consequently, there was rapid progress in the development of infrastructure within refugee settlements, including schools, healthcare facilities, roads, and water supply facilities, making them accessible to both refugees and HCs, facilitated by international organisations and donors.

The “Comprehensive Refugee Response Framework (CRRF)” established by the United Nations in 2016 prioritises not only the self-reliance and empowerment of refugees but also the enhancement of social service provision in HCs[11]. Rather than the previous refugee-centred policies, an initiative called “Refugee and Host Population Empowerment (ReHoPE)” has been launched, aiming for the coexistence

[9] UNHCR Global Trends Forced Displacement in 2022(Global Trends Report 2022 | UNHCR)
[10] UNHCR Country - Uganda (unhcr.org)
[11] Comprehensive Refugee Response Framework | UNHCR

of refugees and HC residents with empowerment. In 2021, the Ugandan government announced "The Jobs and Livelihoods Integrated Refugee Plan (JLIRP)," aimed at providing employment and livelihood integration support for refugees and HCs. JLIRP established the goal targeting 2025, which includes refugees' and HCs' social, economic and financial integration into regional development in a sustainable manner[12] along with the following five strategic objectives.

1) Peaceful coexistence and economic interaction extended and strengthened between refugees and host communities by 2025
2) Sustainable economic opportunities created in 13 refugee hosting districts for improved competitiveness and inclusive growth of refugees and HCs by 2025
3) Food, nutrition and income security of 486,861 refugee households and 1,152,087 HC households improved by 2025
4) Skilled refugees and HCs capable of harnessing employment opportunities in the country by 2025
5) A minimum of 361,000 (5%) of refugee and HCs' vulnerable populations are fully included and actively participating in local development initiatives of the country by 2025

These policies place particular emphasis on job creation and economic development. Specific measures taken by the Ugandan government include the establishment of a venture capital fund to support young entrepreneurs, vocational training programs, and support for the acquisition of business and management skills. In this way, the Ugandan government is emphasising the growth of the country in a way that includes not only refugees but also its own citizens, and is seeking to create an environment in which refugees and local residents can coexist while complementing each other.

2.3 Support activities for refugees and HCs by various stakeholders

There are various stakeholders engaged in providing support for refugees and HCs. This Survey collected information on existing support activities for refugees and HCs, with a particular focus on livelihood improvement, which is directly related to the Survey.

2.3.1 Support by UNHCR

(1) UNHCR support areas

UNHCR divides its support activities for refugees in settlements into the major areas described below:

- Protection
- WASH (Water, Sanitation and Hygiene)
- Livelihood
- Environment and Energy
- Education (sometimes included in Protection as a basic need)

(2) Approach of UNHCR's support for refugees in Uganda

UNHCR's activities in settlements in Uganda are planned with the ultimate goal of enabling refugees to achieve "self-reliance" in the medium to long term, with the assumption that they will reside in the settlements for a longer period over several years. This includes not only agricultural activities for food production of their own consumption but also empowerment for refugees to develop their skills, generate income on their own, and obtain access to financial services to expand their businesses sustainably.

(3) UNHCR's support through IPs

Aligned with the approach mentioned above, support activities in the fields are often facilitated by selected organisations such as Non-Governmental Organisations (NGOs), referred to as Implementing Partners (IPs), in each sector. Instead of directly deploying their own resources, UNHCR often appoints

[12] Document - Jobs and Livelihoods Integrated Response Plan for Refugees and Host Communities in Uganda (unhcr.org)

these IPs with activities in the sector. NGOs, Community Based Organisations (CBOs), or officially registered organisations of any form can be nominated as IPs. They enter into Project Partnership Agreements (PPAs) after the selection process and budgets are allocated.

UNHCR is in the supervising position to ensure there are no issues such as overlapping or insufficiency in the service delivery, by coordinating various organisations operating in settlements. UNHCR also identifies and collaborates with organisations that engage in support activities, both within and outside the settlements, even if they are not in a direct contract (PPAs) with UNHCR. These organisations are referred to as Operational Partners (OPs).

(4) Selection, evaluation, and management of IPs

According to the livelihood officer from UNHCR Arua Sub Office at the time of the Survey, typically one organisation (IP) is appointed per sector in each Sub Office. The selection process is led by UNHCR Uganda Country Office, with Sub Offices contributing mainly to the technical evaluation. OPM participates as an observer but does not directly engage in the selection process.

Normally, UNHCR does not provide detailed instructions on the implementation of IP activities, but instead authorises IPs to conduct activities in their own way to a certain extent within the framework of the PPAs. To follow up, officers stationed in the field at Sub Offices move around to carry out regular monitoring, and IPs are mandated to submit reports every quarter.

(5) Implementation of block-farming by IPs

Among the livelihood improvement projects implemented by UNHCR, one of the main focuses of the Study is block-farming. Prior to the field survey, the illustration below was presumed as a typical model of block-farms.

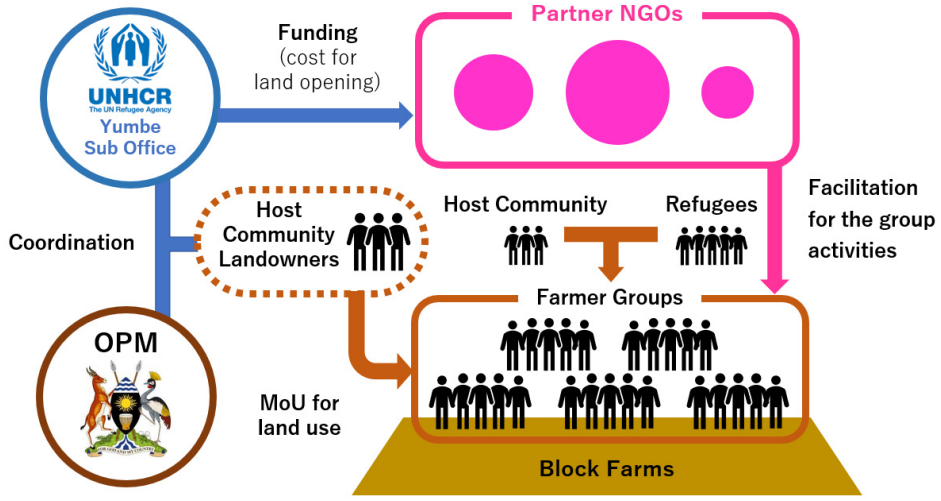


Figure 3: Implementation model of block-farming by UNHCR coordinating the stakeholders

However, according to interviews on the ground, block-farming operations combining all the above elements shown in Figure 3 are still limited in number, and the reality is as follows.

Table 2: Comparison of various block-farming implementation models

Presumed block-farming	Actually implemented block-farming / group-farming
UNHCR and OPM coordinate MoU for land use between HC landowners and refugees.	NGOs also coordinate land use agreements. There are many informal cases of direct

Presumed block-farming	Actually implemented block-farming / group-farming
	agreement between HC landowners and refugees.
UNHCR funds the cost of land opening, or "cash for work" where refugees are paid to open up the land.	UNHCR intended to implement land opening by machine directly, not yet conducted on a large scale at the time of the Survey. Cash for work was significantly reduced as an engagement model.

Diverse patterns of block-farming implementation by various organisations shall be examined in detail later on.

2.3.2 Support by NGOs

The refugee settlements targeted for the Survey are all identified with fewer new refugee influxes compared to the past, but with more refugees residing longer-term over several years in those settlements. Consequently, many international NGOs, particularly those whose main focus is emergency response, have shifted their bases to Southwestern Uganda, where there are new refugee influxes, and continue their operation there. Among these organisations which still continue their support activities in the West Nile Sub-region, many are focusing on long-term initiatives such as livelihood improvement.

As mentioned in the previous section, NGOs and similar organisations are operating in refugee settlements, some of which act as IPs for UNHCR projects, while the majority conduct their own activities based on their expertise. In either case, they share their activity details with UNHCR and OPM, and also maintain coordination platforms such as regular meetings for information exchange and reporting on each other's activities within the same sector or zone.

2.3.3 Support by development partners

(1) Partnership between JICA and UNHCR

JICA Uganda Office and UNHCR Country Office signed a Memorandum of Cooperation (MoC). Based on this agreement, JICA has implemented activities targeting refugees and HCs. One of the leading initiatives related to refugee livelihood improvement under the JICA-UNHCR partnership is the intervention by the Promotion of Rice Development Project (PRiDe), which collaborates with NGOs serving as IPs. This project continuously conducts rice cultivation training for farmer groups, including refugees and HCs. In the Rhino Camp Refugee Settlement, significant increases in refugee income have been observed out of commercial rice production. Even during this Survey, many stakeholders from various sectors often mentioned this case as a successful example.

(2) Support by other development partners

On the other hand, development partners other than JICA have been conducting their support activities through UNHCR or IPs by providing funds for them or outsourcing project implementation. Therefore, their direct presence in the settlements is relatively low.

2.3.4 Support by private enterprises

(1) Support by Ugandan private enterprises

In the Bidibidi Refugee Settlement, one of the major Ugandan enterprises in general manufacturing of food and daily consumables, Mkwano Industries (U) Ltd., tried to utilise block-farming and procure oil seeds for their production under the contract with refugees and HCs. According to an OPM officer for livelihood, they tried to produce soybeans and sunflower seeds in newly opened block farms and

engaged refugees for farming activities. However, as the first trial, the company and the IP which was supposed to coordinate the production did not successfully fill the gap between the expectation and the actual production; the yield was much less than expected and the logistical cost of harvest collection was relatively high, which the company struggled to cover, and in some cases the company decided against purchasing the harvest from the farms. At the time of the Survey, oil seed production with private enterprises was not conducted in block farms.

GADC, the technical partner for the pilot activity of the Survey, was also engaged in several support activities for refugees in the past, in partnership with other organisations such as NGOs. In some cases, including this Survey, GADC participated as a technical partner and provided supplementary technical assistance. In other cases, they received funds from a development partner and conducted a certain component of the projects on behalf of the organisation. In the latter cases, GADC formed an implementing team and oversaw everything from mobilisation of farmer groups to monitoring. In each case, the stakeholders appreciated the contribution of GADC as they eventually purchased the harvest from the farms and secured market linkage of cash crops.

(2) Support by Japanese private enterprises

FAST RETAILING CO., LTD. is a Japanese private enterprise that holds an official partnership with UNHCR and is recognised for its support activities for refugees in Uganda through donations of clothing. The company collects gently used second-hand clothes from customers at their stores, checks the condition and sorts them by gender, size and season, then ships only selected items at its own cost. Distribution is carried out by UNHCR field offices based on the profile and needs of each refugee household.

ITOCHU Corporation, a Japanese general trading company, has been working in Uganda since 2022 in cooperation with GADC, a technical partner of this Survey. They are planning to produce organic cotton including support for refugees and export the cotton to the Japanese market. ITOCHU Corporation has received a Letter of Support jointly signed by OPM and UNHCR.

(3) Support by other foreign private enterprises

Some global major enterprises which hold partnerships with UNHCR conduct support activities for refugees in Uganda as their Corporate Social Responsibility (CSR). Similar to the cases of foreign development partners, they mainly provide funds to either UNHCR or NGOs and indirectly conduct activities or outsource the project implementation to those organisations, so their direct presence or visibility in the settlements is not significant.

2.4 Current situation of refugees and HCs

2.4.1 Basic information regarding refugee settlements under the Survey

The Survey targeted four refugee settlements in the West-Nile and Acholi Sub-regions, namely the Rhino Camp, Bidibidi, Adjumani and Palabek Refugee Settlements. These refugee settlements are some of the largest refugee settlements in Uganda, with 150,000-200,000 refugees. This section presents basic information regarding the target refugee settlements.

Most refugees in the settlements in the West-Nile and Acholi Sub-regions are South Sudanese. After the July 2016 armed conflict in Juba, the security situation in South Sudan deteriorated and the number of refugees coming to Uganda surged. Following the peace agreement reached in September 2018, fighting between military factions across the country has ceased, but tribal and political tensions continue to exist. The influx of refugees from South Sudan into Uganda continues to this day.

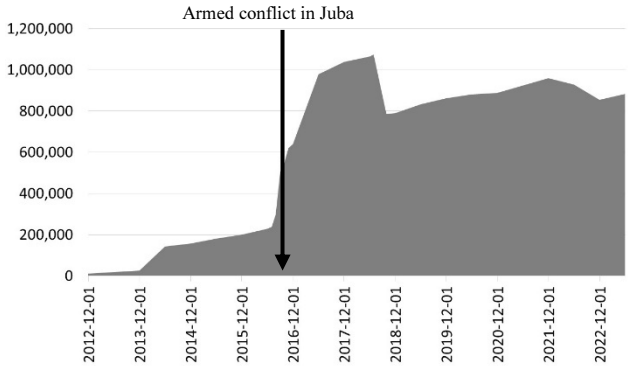


Figure 4: Fluctuations and population of South Sudanese refugees in Uganda

Source: Created by the survey team based on the data from UNHCR (https://data.unhcr.org/en/situations/southsudan)

Table 3 summarises the annual influx to Uganda, especially the West Nile and Acholi Sub-regions between January and December 2022. Approximately 50,000 people arrived during the year, which means a third or quarter the number of refugees in the Rhino Camp Refugee Settlement (approximately 150,000 refugees) and in the Bidibidi Refugee Settlement and the Adjumani Refugee Settlements (approximately 200,000-220,000 refugees). Uganda is still experiencing new arrivals who are seeking safety in Uganda, and refugee settlements that are targeted under this Survey are also continue accepting refugees.

Table 3: Numbers of new refugee arrivals in 2022[13]

District	No. of new arrivals in 2022
Adjumani District	962
Amuru District	13,855
Arua District	1,045
Koboko District	8,836
Lamwo District	22,818
Yumbe District	1,237
Total	48,753

*Only refugees from South Sudan are counted

Source: Created by the Survey team based on data from UNHCR (https://data.unhcr.org/en/documents/details/99636)

Refugee settlements targeted by this Survey are still accepting refugees. For instance, Adjumani and Bidibidi Refugee Settlements continue to receive a small number of refugees, while data shown that the Rhino Camp Refugee Settlement has received between 1,000 and 5,000 refugees on multiple occasions during 2022 alone. The current number of refugees in each refugee settlement under this survey and the population of HCs (at district level) are summarised in Table 4.

[13] Data on the number of people received by District, not by refugee settlement, because the data is a count of the number of registrations in the District (Transit Centres, Reception Centres, and Collection Points) where the refugees were registered.

Table 4: Population of refugee settlements and HCs targeted by the field survey

Population of refugee hosting district[*1]		Settlement Name	Refugee Population (No. of households)	Disaggregation ● Marked: Zones/refugee settlements established after 2016				
				Zone	Established in	Population (No. of households)		
Terego and Madi-Okollo Districts	428,300	Rhino Camp	156,863 (29,003)	Zone 1 (Ocea)	1993	15,789	(2,360)	[*2]
				Zone 2 (Siripi)	1993	21,508	(4,799)	
				Zone 3 (Eden)	●2016	19,134	(3,629)	
				Zone 4 (Tika)	1993	11,032	(1,750)	
				Zone 5 (Odubu)	1993	14,447	(1,854)	
				Zone 6 (Ofua)	●2016	26,769	(4,969)	
				Zone 7(Omugo)	2017	48,231	(9,640)	
		Imvepi	67,759 (15,356)					
Yumbe District	775,000	Bidibidi	198,183 (36,578)	Zone 1	●2016-	36,123	(6,198)	
				Zone 2		44,495	(7,503)	
				Zone 3		47,214	(9,331)	
				Zone 4		28,233	(5,395)	
				Zone 5		42,106	(8,146)	
Adjumani District	240,000	Nyumanzi	221,360 (29,854)	—	2014	50,143	(5,124)	[*3]
		Pagrinya		—	●2016	41,140	(6,567)	
		Ayilo I		—	●2016	29,438	(3,043)	
		Ayilo II		—	2014	17,399	(2,164)	
		Maaji I		—	1987	585	(84)	
		Maaji II		—	2012	19,061	(2,883)	
		Maaji III		—	2014	16,758	(2,830)	
		Mungula I		—	1994	5,815	(706)	
		Mungula II		—	1994	1,722	(300)	
		Boroli I		—	2013	10,981	(1,663)	
		Boroli II		—		5,433	(887)	
		Mirieyi		—		8,582	(982)	
		Agojo		—	●2016	8119	(1,795)	
		Baratuku		—	2014	7,275	(969)	
		Olua I		—	2012	5,835	(656)	
		Olua II		—	2012	4,654	(553)	
		Oliji		—		1,594	(238)	
		Alere		—	1993	8,419	(843)	
		Elema		—	1993	1,043	(195)	
Lamwo District	148,100	Palabek	81,300 (17,248)	Zone 1	●2016-	3,598	(933)	[*2]
				Zone 2		3,919	(1,068)	
				Zone 3		6,086	(1,169)	
				Zone 4		7,830	(1,805)	
				Zone 5 A		7,546	(1,390)	
				Zone 5 B		12,506	(2,790)	
				Zone 6		20,720	(4,147)	
				Zone 7		10,719	(2,189)	
				Zone 8		5,921	(1,293)	

*1: Data obtained from Government of Uganda and OPM, Uganda Comprehensive Refugee Response Portal. District population was at the point of 30th November 2023. (https://data.unhcr.org/en/country/uga)
*2: The total refugee population for the refugee settlements as a whole does not match the total of adding up the breakdown of the number of refugees shown for each zone/settlement, but is stated as per the figures provided in the original data of UNHCR.
*3: Population data of refugees of the Rhino Camp, Bidibidi and Palabek Refugee Settlements were obtained from the Government of Uganda and OPM, Uganda-Refugee Statistics March 2024 (https://data.unhcr.org/en/documents/details/103333)
*3: Population data of the Adjumani Refugee Settlement was obtained from the Government of Uganda and OPM, Uganda-Refugee Statistics March 2023 – Adjumani, as it presented the most updated disaggregated population figures for each settlement (https://data.unhcr.org/en/documents/details/99970)

Comparing the populations between the refugee hosting districts and refugee settlements, it shows that in Adjumani, the refugee population is catching up with that of the HCs. Another relatively new refugee settlement, the Bidibidi Refugee Settlement, was established in 2016 but already hosts more than 190,000 refugees, about a quarter of the population of Yumbe District.

A breakdown of the refugee settlements shows that the Rhino Camp, Bidibidi, and Palabek Refugee Settlements are referred to as one refugee settlement by combining several zones. In contrast, the Adjumani Refugee Settlement refers to the unit referred to as a "zone" in the other two refugee settlements as a "refugee settlement".

Regarding the location of refugee settlements in HCs, while the Rhino Camp, Bidibidi and Palabek Refugee Settlements are one large piece of land and are divided it into several zones located next to each other, Adjumani has a number of settlements scattered in different areas of the district. This is due to the fact that Adjumani District has been receiving refugees for a long time and is related to the circumstances regarding the preparation of land for reception. Perhaps due to the large influx of South Sudanese refugees, zones/settlements established after 2016 are larger than earlier ones.

Next, the characteristics of refugees living in refugee settlements will be described based on the statistical information collected and the results of interviews.

- As of March 2024, 96% of the refugee population in Rhino Camp and 99% of the refugee population in Bidibidi, Adjumani, and Palabek Refugee Settlements are from South Sudan[14].

- Regarding the family size of refugee households, it was calculated that the average number of persons per household is 5.4 in Bidibidi, 5.9 in Rhino Camp, 7.4 in the entire refugee settlement of Adjumani and 4.7 in Palabek Refugee Settlements, based on a calculation using the refugee population data from Figure 5. If only newly established settlements are extracted, the number of households becomes 5.7. A survey conducted by the World Bank[15] shows similar data, with the average family size at 5.8 persons per household in the West-Nile Sub-region (5.3 for HCs). It was also reported that as the years go by, the number of households tends to increase as men and relatives who remain in South Sudan join[16].

- The ratio of female-headed to male-headed households is about 6 to 4, with a higher percentage of female-headed households (31% of households in Uganda as a whole are headed by women). For female-headed households, there are cases where the husband is still in South Sudan and cases of separation or bereavement, but statistical information about this breakdown is unknown.

- A report on refugee statistics prepared by UNHCR and OPM announced that about 80% of the refugees are women and children, and that the number of men and women in each settlement is about the same. However, a breakdown shows fewer males than females in the 18+ age group. The trend of more females than males is even more pronounced in the 36+ age category.

[14] Government of Uganda and OPM, Uganda-Refugee Statistics March 2024 (https://data.unhcr.org/en/documents/details/107753)
[15] World Bank, Informing the Refugee Policy Response in Uganda: Results from the Uganda Refugee and Host Communities 2018 Household Survey (https://data.unhcr.org/en/documents/details/89335)
[16] World Bank, Informing the Refugee Policy Response in Uganda: Results from the Uganda Refugee and Host Communities 2018 Household Survey (https://data.unhcr.org/en/documents/details/89335)

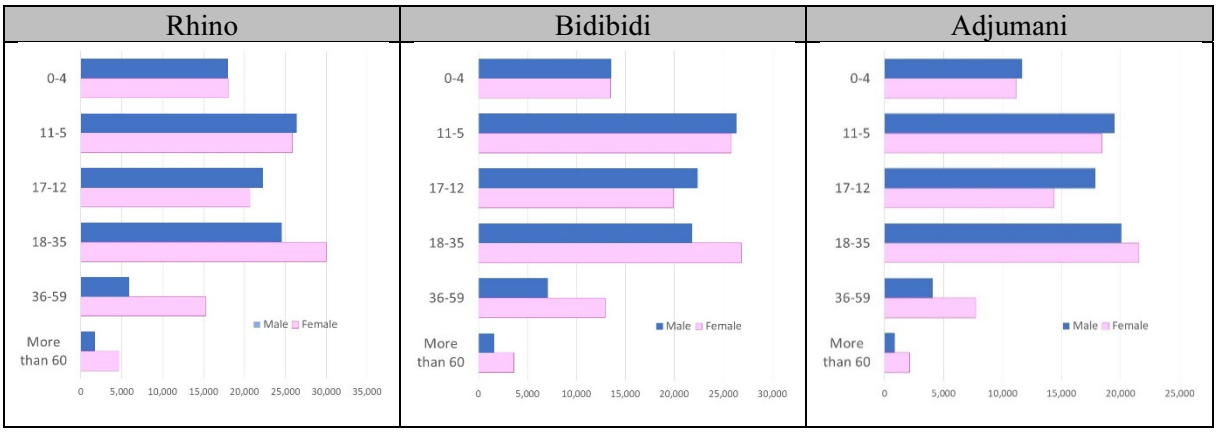


Figure 5: Distribution of the surveyed population in the West Nile Sub-region by sex and age

2.4.2 Arrangements for moving into refugee settlements

Although there are multiple processes involved when moving to a refugee settlement, they can be broadly divided into two main categories: reception centres and refugee settlement responses.

Table 5: Flow from arrival in Uganda to living in a refugee settlement

(1) Arrival at a reception centre		
	Registration	• Registration is conducted by OPM. Basic information such as the number of people in the household, gender, etc. is registered. • Based on the registration details, the refugees receive rations and other services by WFP.
	Emergency assistance	• Receive health checks (screening) and health services and nutritional care based on the results of these checks. • Access to food and drinking water, shelter, toilet and bathing facilities.
	Land allocation	• Waiting for an allocation of land for residential use.
(2) After transfer to a refugee settlement		
	Transfer to a settlement	• Receive and install plastic sheeting, poles, and other materials for simple housing.
	Food distribution	• Receive monthly food rations at a food distribution point. • New arrivals receive 100% food rations for 3 months. Thereafter, the ration is reduced to a categorical ration based on the vulnerability of each household, introduced from July 1, 2023.
	Access to different services	• Initiation of access to education and health services.

(1) Reception centres

Refugees fleeing to Uganda from neighbouring countries are transferred by the Government of Uganda (OPM), UNHCR and partners to safe locations away from the border upon arrival at the border. These transfer points are called transit centres, reception centres, and collection points. There are 16 such locations in Uganda[17], seven in the West Nile Sub-region and one in the Acholi Sub-region. The time spent at transit/reception centres is said to be one to two weeks, but the number of days varies depending on the situation. Refugees undergo health and registration assessments and wait for their land allocation.

[17] Information as of June 2022. There are 14 transit centres, reception centres and collection points, one isolation centre and one holding centre.

(2) Refugee settlements

After completing the procedures for registration including obtaining IDs, refugees are transferred by OPM to a plot for their residence. The fixed size of a family's residential plot is 30m×30m . However, there have been reports of larger plots in refugee settlements in the West Nile Sub-region, which the Survey also observed on the ground[18]. Apart from this residential plot, refugees are not given land for cultivation, so they normally cultivate in the residential plots to grow some crops if conditions allow. In some places, however, the land conditions are not suitable for cultivation.

As for housing, at first, refugees are provided with materials for simple temporary dwellings similar to tents. The refugees themselves then take time to build their own houses (locally called "huts"), which are similar in form to those of the neighbouring HCs. If the head of household is disabled, the household will receive assistance for the construction of their house. In addition to monthly food rations, access to services such as education and health care is provided.

2.4.3 Administrative structure of refugee settlements

At the refugee settlement, there is a governing structure called the Refugee Welfare Council (RWC), which is composed of three layers: RWC1, RWC2, and RWC3. The figure below shows its structure and correspondence with Uganda's administrative structure.

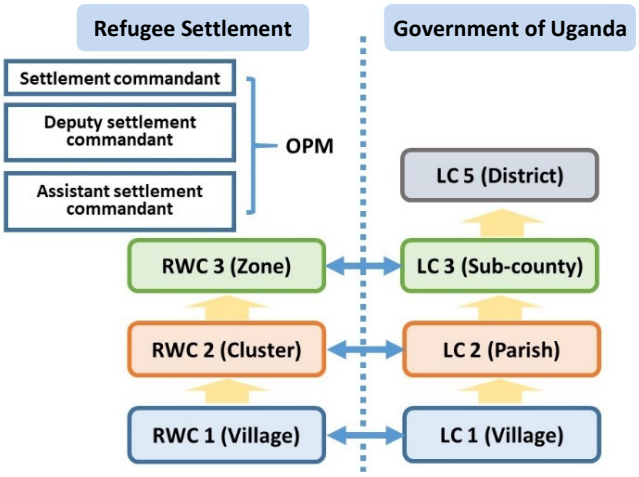


Figure 6: Refugee settlement's governing structure and Uganda's administrative structure

Uganda's local government system defines the district level council as Local Council 5 and its chairperson is usually called LC 5. Sub-counties are established under these councils, with the Sub-county council defined as Local Council 3 and its chairperson called LC 3. Parishes are established as administrative units under Sub-counties, and the head of a parish is called the Parish Chief (LC 2), but no council is established at the parish level. Also, under the parishes, there are villages, the smallest administrative unit, and the Village Chief is called LC 1, with a council established at the Village level. Thus, the district level of governance has four levels of administrative units.

Within refugee settlements, RWCs have been established in response to this Ugandan system. The smallest unit of governance in a refugee settlement is the village, and the units that unite the villages are called clusters. The aggregation of these clusters is called a Zone, which is the top level unit of governance within a refugee settlement[19].

[18] UNHCR Uganda, Comprehensive Refugee Response Framework Uganda, The Way Forward, 2017
[19] This structure is the result of interviews in a refugee settlement in Yumbe District. Other refugee settlements may have a slightly different structure, although the structures are largely similar.

The representative of the Zone is called RWC 3, which corresponds to the Sub-county Chief (LC 3) level in Uganda. Similarly, RWC 2 and RWC 1 are positioned as Parish Chiefs (LC 2) and Village Chiefs (LC 1), respectively, and when disputes arise between refugees and HC residents, representatives at the same level hold discussions and handle the disputes for both refugees and HCs. The system functions effectively because the level of representation is consistent in terms of which issues and which level of representatives are responsible for handling disputes.

The smallest unit of refugee governance, the Village, has a Council with RWC 1 as chairperson, consisting of 11 Council members; RWC 1 is elected by the refugees, and the other members are determined through dialogue with the refugees, led by RWC 1.

Table 6: Composition of RWC 1 (village level)

• Chairperson • Vice chairperson • General secretary • Secretary for women's affairs • Secretary for youth and sports • Secretary for people with special needs and disabilities	• Secretary for security (Five neighbourhood watch schemes under security) • Secretary for environment and production • Secretary for education • Secretary for health, sanitation and nutrition • Secretary for finance

Source: Created by the Survey team

For RWC 2, the chairperson is selected from RWC 1 among the villages under the jurisdiction of the cluster, so there is no election for the representative. However, when electing members, care is taken to ensure that representatives from each village are elected in a balanced manner.

The chairperson of RWC 3 is elected by the residents of the zone, with the RWC 3 the representative at the top and the same composition of the council members as at the village level.

2.4.4 Food assistance to refugees by WFP

WFP calls a combination of food items to provide the equivalent of 2,100 kilocalories of food per person per day a "food basket". In the refugee settlements covered in the Survey, the basket consisted of 12.6 kg of grain (maize), 3 kg of legumes, 0.9 kg of vegetable oil, and 0.15 kg of salt. With little means of livelihood or food production, refugees tend to depend on food rations for their daily meals. However, due to the funding shortage, WFP started reducing rations for all refugees uniformly and the rations have been cut in stages since 2020.

As a first step, in April 2020, a decision was made to uniformly cut the rations for all the refugees in Uganda to 70%, followed by a further cut to 60%. As a negative result of this uniform ration cut affecting all households, it was confirmed that the most vulnerable segments of refugee households were experiencing very large negative impacts. Therefore, this situation led to discussions among UN agencies regarding the need for prioritisation, taking into account the vulnerability of each household and other factors. Subsequently, WFP made adjustments for ration reduction in the following three phases from 2021 to July 2023 as shown in Table 7. Refugee settlements and households were assessed, and settlements and refugee households were categorised based on their vulnerability. Rations were then sloped by category, and policies were changed to distribute more of the limited budget to where the needs are greatest.

Table 7: History and process of food ration cuts by WFP

From 2021: Geographic prioritisation

- Assessing differences in conditions among refugee settlements in Uganda and adjusting rations according to "vulnerability".
- Conditions included multifaceted indicators such as weather, access to markets, and rates of malnutrition.

Refugee settlements were classified as below, from Group 1 to 3 (Group 1 is more vulnerable than Group 2 and 3)

Group 1	Cut to 70%
Group 2	Cut to 60%
Group 3	Cut to 40%

From 2022: An index-based ranking (targeting Group 3 by geographic prioritisation)

- This is targeting Group 3 as a result of geographic prioritisation, which was undertaken in 2021 (the prior exercise cut the food ration to 40% for Group 3).
- The criteria were developed to prioritise and identify vulnerable refugees among Group 3 geographic prioritisation.
- Those who were identified as "vulnerable" under the criteria received an increased food ration of 60%, up from the previous 40%.

From 1st July 2023: Household prioritisation

- Each household was evaluated by vulnerability, then categorised into three.
- Prioritisation exercise was carried out by OPM, UNHCR and WFP.

Target: All refugees in Uganda (by household)

Category 1	Highly Vulnerable	Cut to 60%
Category 2	Vulnerable	Cut to 30%
Category 3	Self-reliant	Cut to 0%

Source: Created by the Survey team based on interview with WFP and collected documents[20]

Household prioritisation began on 1st July 2024, during the survey period. Across Uganda, Category 2 (Vulnerable) makes up 82% of the total refugee population, which means that most refugees receive only 30% of the standard ration. Category 1 (Highly Vulnerable) is 14% and Category 3 (Self-reliant) is 4%.

Table 8: Changes of rations in refugee settlements in the West-Nile Sub-region

Timing	Ration	
April 2020 -	70	%
February 2021-	60	%
2021 to June 2023	70	%
July 2023 -		
Category 1	60	%
Category 2	30	%
Category 3	0	%

Source: Created by the Survey team

The face-to-face interviews with refugees during the Survey confirmed that they are currently facing very difficult circumstances. The amount of maize they were able to receive in the past was 12.6 kg but now it is 4 kg, and one refugee testified that "despite reducing the frequency and quantity of meals after the cut, food can last for only two weeks." A great number of refugees complained of their impoverished situation.

Between 2020 and 2023, there were ration cuts, but rations remained at about 60-70%. At that time, there was only a little impact and influence on their daily meal. Many refugees said, "Although the situation was not easy, we could manage with this amount (cut to 60-70%)." The drastic cuts in food rations after July 2023 made it difficult for refugees to feed their families. Especially considering that refugees were not given land for cultivation, it became extremely difficult for refugees to supplement food by themselves. Some refugees mentioned during interviews that they may have to make a hard choice: either starve in Uganda or risk returning to the border areas or South Sudan where there is land available to grow food.

A refugee who is currently working (voluntarily) as RWC 3 and has also worked at a school in the past in a refugee settlement said that he became Category 3. Since he is no longer working and getting income,

[20] UNHCR, WFP, Support to UNHCR and WFP country operations in Uganda (https://wfp-unhcr-hub.org/wp-content/uploads/2023/06/Uganda-Hub-support-brief_20230510_clean.pdf)

he said he needed to have himself reassessed. He said his living condition is not far removed from that of a household under Category 2. Households wishing to be reassessed can apply to the "Protection Partner" operated by UNHCR. However, the process is lengthy, usually taking 4-6 months[21]. Considering these circumstances, it seems that while there is little opportunity for refugees to be given land for cultivation officially, one possible way to overcome the impact of ration cuts would be for each refugee household to be able to access HC land and produce foods.

Image of food provided by WFP
(Left and middle: 4 kg of maize, Right: Oil)

2.4.5 Refugees' means of livelihood

Again, Uganda has a generous policy for refugees, opening its territory to refugees regardless of nationality or ethnicity. Freedom of movement, the right to work, and access to land are recognised in the refugee policy, with the expectation that refugees will be able to become economically independent. However, it has been reported that the lack of documentation in Uganda to show language, education, and skills, as well as limited social networks and employment opportunities, are barriers that make it difficult for refugees to find work[22].

A similar situation is confirmed by the Survey. In particular, it seems that there are employment opportunities in refugee settlements - for example, limited-time employment contracts for NGOs' activities in the settlements or assistant positions in schools - but very few people are able to seize these opportunities. Therefore, households in general are dependent on aid, as shown in the World Bank survey (conducted in 2018) in the table below.

Table 9: Sources of income of refugee households

	Agriculture	Enterprises	Aid	Salary	Remittance	Other
West-Nile Sub-region	7.2%	6.5%	**66.1%**	9.1%	8.2%	2.9%
Kampala	0.5%	12.1%	3.7%	0.5%	74.1%	9.1%
Southwest Uganda	20.1%	4.3%	45.5%	12.2%	17.5%	0.5%

Source: Created by the Survey team based on World Bank, Informing the Refugee Policy Response in Uganda: Results from the Uganda Refugee and Host Communities 2018 Household Survey. Due to the combinations of the reference data, the total for the Southwest exceeds 100%.

Informal sources of income are also reported from household surveys of refugee households; the FAO survey[23] found that small trades are the most common business conducted by refugee households in refugee settlements, with local liquor making, charcoal and firewood sales, fish sales, and motorcycle taxi being the most common of these small trades. However, not all households are engaging in these small businesses, and they tend to depend on food aid from the WFP for their livelihoods. Although

[21] There is an "Emergency Appeal"
[22] World Bank, Informing the Refugee Policy Response in Uganda: Results from the Uganda Refugee and Host Communities 2018 Household Survey
[23] FAO and OPM. 2018. Food security, resilience and well-being analysis of refugees and host communities in Northern Uganda. Rome. 78 pp.

agriculture is one means of livelihood, the FAO survey results indicate that only 9% of refugee households own more than 0.5 acres of land, and only 3% own more than 1 acre. Consequently, a World Bank study (conducted in 2018) indicates that an estimated 50% of Uganda's refugee population lives in poverty[24].

2.4.6 Results of interview with refugees and HCs

(1) Overall situation of refugees and HCs

1) Living conditions of refugees

Typical expenses while living in refugee settlements include PTA fees and uniforms for children's schools, and the purchase of daily necessities (soap, etc.) and foods. Refugees meet these expenses by cashing in a portion of their monthly food rations. In addition, before 2016, some refugee households switched from food rations to cash transfers with school-related expenditures in mind. Others have responded by earning cash by farming in their HC's fields in addition to rations to cover their expenses.

Interviews with refugees in the targeted refugee settlements confirmed that before July 2023, monthly food ration was enough for them to cope to some extent with daily meals and school-related expenses, but the situation has now changed significantly due to ration cuts. Some examples obtained regarding the household financial situation of refugee households are presented below.

Case 1

- Tuition is free and textbooks are provided at school, but uniforms and PTA fees must be handled by a parent/parents; the PTA fee is UGX 2,000[25] per term but can be paid later by negotiation with the school if money is not ready at the beginning of each term. However, if the payment is not completed by the date of each term's exam, the student will be unable to take the exam.
- The "frequency" of cash needs is high for daily necessary expenditures, such as the cost of milling maize (maize is distributed unmilled by WFP, so refugees pay UGX 100 per kg to mill it into flour) and purchasing soap (in particular, school strongly encourage families to keep school uniforms clean and to do daily laundry). Although not a frequent expenditure, the cost of children's uniforms is a particularly high amount, and these need to be replaced approximately every year due to wear and tear from daily washing and the growth of the children. Another burden is the PTA fee (UGX 2,000 each term, for a total of 6,000 UGX per year), which must be paid each term.
- As food rations decrease, the ways of making ends meet are changing. In the past, the WFP food ration became a source of cash as recipients sold some of the food (especially cooking oil) to get cash, but this has only been possible in the last year or so. Recently, this household has spent some time farming in other people's fields and receiving cash or goods in-kind goods (such as cassava).

Case 2

- Before the household prioritisation, life was manageable with the food rations from WFP, but this household became Category 3 and is no longer receiving food rations. They commented, "There is really nothing to eat."
- Since the household head (male) is not strong enough to farm and is prone to illness, it is difficult for him to rent land to grow his own crops. Even if he were to rent land, it would cost a lot of money. He can only grow okra, onions, green leafy vegetables, and beans in the kitchen garden

[24] This study (conducted in 2018) estimated that the poverty rate was about 28% for refugees living in the Southwest, while refugees in the West Nile Sub-region had a higher poverty rate of about 60%. The study also compared the poverty rates of subjects who arrived in Uganda as refugees in the past two years with those who had been in Uganda for more than five years, and showed that 59% of the former were in poverty compared to 22% of the latter, indicating that the poverty rate decreases as the length of stay increases.

[25] 80 JPY according to April 2024's JICA exchange rate

around his house.
- His wife works in other people's gardens as an agricultural labourer and earns daily wages to make ends meet.

Case 3

- When this woman was in Yei, South Sudan, she ran a small general merchandise business. Her husband was a bike taxi driver and life was stable, but then came the war. She came to Uganda to feed her children.
- She has four biological children, as well as three children of her brother-in-law (who died in the war), whom she has taken care of since she was in South Sudan, making hers a family of eight. The smallest child is 7 years old. Her husband remained in South Sudan but is not in contact with her.
- Life was good when she and her children were getting 12 kg/month per person of maize. Now there is not enough food, so she goes to HCs with her older children to work on weekends. They often work on farms, ploughing cassava, weeding, etc.
- With four family members, the household can earn about UGX 35,000 working two days. With this UGX 35,000, they often buy 10-12 kg of maize (UGX 30,000), grind it (UGX 2,000), and buy small fish (UGX 2,000). Around 10-12 kg of maize is enough for four days of meals for a family of eight people, if they eat one meal a day. With the current rations, the meals would only last 2 weeks.
- Going to the HCs to look for firewood on weekdays is a 10 km journey each way, so this work alone takes up a whole day.
- They grow beans, pumpkin leaves, okra, and green leafy vegetables around the house.

A common challenge across all refugee households the Survey interviewed was the significant negative impact of ration cuts on household finances and food. In response to this impact, refugees are now renting land from HCs for free or for a fee to grow food, but they are struggling to access land and raise money to rent it. First, they said that access to HCs' land is easier if they have a relationship (acquaintances or friends) with the HCs. In addition, some people said that it is challenging for female refugees to find HCs who can assist them with the land because HCs' landowners are men. However, from the interviews, it was their impression that in some cases, if the relationship is established, gender does not matter. The problem, however, is the rent for the land, which varies depending on size, duration, location, land conditions, etc. For example, in the Bidibidi Refugee Settlement, the rent for an acre of land is said to range from UGX 70,000 to 100,000 per year. Many of the households interviewed chose smaller lots (i.e., 0.25-0.5 acres) or shorter contracts, for six months, for example.

Accumulating money for renting is also a major challenge. Rents are expensive for refugee households, and to secure money, they commonly earn and accumulate small cash by engaging in agricultural work such as cultivating and weeding in other people's fields. But this way is not uniformly applicable to refugee households as they have different characteristics, such as widows/elderly households or those having poor health. Common challenges observed pertaining to working at HCs including distance to the HCs, as refugees take time and travel to HCs to find farm work. Caring for children is also a concern for refugees, as they have to be away from home for many hours when working at HCs' gardens.

Another challenge is dealing with expenditures such as PTA fees. Due to ration cuts, food can last less than a month, and it is difficult for refugee households to use a food ration for expenditures by selling a part of it. From the interviews, it was confirmed that the above-mentioned farming in other people's fields, collecting and selling firewood and sand, repairing thatched roofs, cutting down building materials, building brick houses, selling cookies and snacks, and peddling at markets are opportunities to earn daily wages while living in refugee settlements.

These are the challenges and strategies that refugees are encountering. Table 10 shows issues by household type in relation to the above-mentioned food and land issues.

Table 10: Issues by household type

Female-headed household
• As a single parent, there are time constraints and a lack of labour. The mother of the house needs to be home by noon when her children return from school, which limits her time for farm work and daily income earning. • When working in HC fields, men have an advantage (so women lose opportunities) when asked to handle heavy work such as ploughing land, which tend to pay higher. • In addition to the severity of their living conditions, her own health care and physical strength determines whether she can work. If the frequency and quantity of meals is reduced, there are days when she is too tired to work in the fields. • Difficulty in disciplining her son due to her husband's absence. There are scattered cases where older sons do not actively help their mothers with farm work.
For households with husband and wife
• The advantages of having a couple together are that they can both work in the fields, the woman can return home to be with her children when they return home from school, and the man can work on the farm or work while the woman takes care of the children. • On the other hand, in some cases, the family size is large, such as taking care of a relative's children, in which case the family has difficulty in raising food and cash with limited land access.
Other (Households with fewer members than those in the above two categories)
Male-headed household: • Similar to female heads of households, there are time and labour constraints as a single parent. • Difficulties of men dealing with childcare, which is culturally handled by women.
Elderly household: • Old age makes it difficult for elderly persons to engage in farm work. • In addition, elderly couples whose daughters and sons do not live with them may be taking care of their grandchildren, have to deal with their grandchildren's school-related expenses and face the same problems as those of the child-rearing generation.
Person with disabilities: • Farming is difficult for physically disabled refugees, who need additional support from WFP and NGOs, etc.
Child-headed household: • Livelihoods are almost non-existent, and support from NGOs and other organisations is needed. • Older children have to take care of their younger sisters and brothers.

2) Agricultural activities by refugees

Agricultural activities by refugees take several forms, including small-scale cultivation in gardens at residential plots, renting land from HCs, group cultivation by refugees, participating in group activity both refugees and HCs by NGO-initiated activities or participating in the block-farming scheme. Small cultivation practice at refugees' residential plots is practised by most refugees, although land conditions vary. Cultivation at the residential plots was commonly practised before the ration cut to get a variety of foods in addition to food rations. Some people can participate in group production activities, while others cannot. Table 11 summarises the examples of production activities by refugees.

Table 11: Common types of agricultural activities by refugees

Type	Scale	Examples
Cultivation at the residential plot (Kitchen garden)	Small scale	Households may grow a little okra, onions, green leafy vegetables, beans, etc., or they may grow more staple foods such as maize.
Renting from HC	Around 0.25 to 1 acres	Staple foods and legumes tend to be grown. In some cases, cotton cultivation was observed in the Adjumani Refugee Settlements. It was noted that plots of land rented from HCs varied in distance from the refugee settlements.
Group production by refugees only	Around 5 acres by a group	The group the Survey interviewed grows cash crops (sesame). The group has about 30 members, who rent land from HCs free of charge and give their harvest in return. Because they need a large plot of land, they are located nearly 10 km away from their residential area (3-4 hours' walk) and often stay overnight to work.
Participation in NGO activities and group activities such as block-farming (members: HC and refugees)	Varies by activities	In a block-farming operation by Caritas in the Bidibidi Refugee Settlement, each farmer grows maize and manages one acre. The harvest is sold jointly and HCs and refugees' relationship is good.

The following points related to refugees' agricultural activities were observed from the in-depth interviews with refugees, HCs and OPM officers.

- OPM has a plan to prepare land for block-farming and allocate plots for each refugee household (i.e., the size of the agricultural plot is 50 m x 50 m per person, as shown in the Bidibidi Refugee Settlement Master Plan[26]). However, due to the lack of budget and donor support, the plan has only been partially implemented. It requires land opening costs, implementation costs for block-farming involving refugees and HCs, which is commonly operated by IP, and other items.

- As a result, refugee households mainly cultivate food crops on a small residential plot of 30 m x 30 m to supplement their food needs.

Residential plot of Zone 5, Bidibidi Refugee Settlement, where some plots were smaller than 30 m x 30 m and refugees cultivate between neighbour's plot and their plot.

Residential plot of Pagirinya in the Adjumani Refugee Settlement. Cultivation is carried out on a 30 m x 30 m residential plot.

- As mentioned, due to a lack of land for cultivation, refugees tend to rent land from HCs at cost or free of charge. Size can vary, such as 0.25 acres, 0.5 acres and 1 acre. Harvested crops are

[26] UNHCR Uganda - Bidibidi Refugee Settlement Masterplan as of 16th May 2019 (https://data.unhcr.org/en/documents/details/74319)

for home consumption, and others are exchanged for cash needs. However, considering that farmers of the Acholi Sub-region cultivate four to five acres of land in a year using two cropping seasons to sustain household needs, the size of land that refugees cultivate cannot be enough. Additionally, renting comes with conditions such as payment in advance and contract issues, which create more difficulties. These contract matters led to cases where some refugees could not meet a payment due for continued land use for the next cropping season while crops were still in the field, needing more time to mature. This meant ending their land usage the following year, with their immature crops still in the field. Under these circumstances, stable crop cultivation for refugees comes with many challenges.

- HCs' impression of production activities by refugees on HCs' land is that "refugees take good care of their land because they have no land. For example, when they grow sesame or sunflower on an acre or so, they take care of it frequently and produce better yields than the HC residents". Similar comments were obtained from different interviews, which indicates the farmers do not engage in extensive cultivation, but carefully manage their land.

- Two types of group production activity by refugees were confirmed: one is renting land from HC as a group, an already existing saving group, and the other is participating in block-farming schemes or any production activity by IPs involving both refugees and HCs. The disadvantage is that group activity requires relatively large plots of land, so the distance tends to be far from settlements.

3) Refugees' access to education and health services

(a) Access to education services by refugees

One of the advantages of living in refugee settlements in Uganda, even under difficult circumstances, is the access to schooling, according to some. The Survey also witnessed many parents who are trying to manage their school-related expenses for their children's future, no matter how difficult their lives. At the primary education level, the necessary expenditures as parents are basically PTA fees and uniforms for each term. Since a degree obtained in Uganda is also valid in South Sudan, all of the households interviewed emphasised education for their children. On the other hand, some testified the following challenges.

(Refugees' opinions and experiences regarding education)

- The situation in the schools in the refugee settlement is not good; there are about 400 students in one class, which makes it very difficult to take classes. The number of teachers is also very insufficient. I want my child to be educated in a better environment.
- In the school, HC children and refugee children are learning together. The problem is that the number of classrooms and teachers is very limited. Especially in grades 1-3 of elementary school, there are sometimes 300 students per class, which makes it difficult to control the class. Some students are not allowed to enter the classrooms and are taught from outside the window. Because of this, the dropout rate is high.
- Some children do not go to school and get married early, which we feel is a problem.

(b) Access to health services by refugees

Interviews with HC officials confirmed that refugee settlements were originally established in areas with low population density, and that access to health services was very difficult prior to the establishment of refugee settlements. On the other hand, after the refugee settlement was established, international organisations and other development partners rapidly improved infrastructure, including the construction of health centres in refugee settlements. This has resulted in relatively better access to health services than in normal rural Uganda. Many HCs commented positively about improved access to health services, since both refugees and HC residents can use the health centres' services.

However, interviews with both refugees and HCs confirmed that there are challenges in the management of the health centres, as some refugees said that they do not have enough medicines when they visit the health centres.

4) Future prospects of refugee households

As previously mentioned, refugees' living conditions are becoming more challenging following the WFP's ration cuts since July 2023. The Survey asked refugees what prospects they currently see for themselves. Below are their responses to the question: "What about the option of returning home when peace comes to South Sudan?" Each of the three women responded as follows.

- If peace returns, I may return to South Sudan. If peace does not return, I will die in this land. Refugee settlement has the problem of hunger, but if I go back to South Sudan now, I may be killed. Some people have been killed recently after returning to South Sudan.
- Our own land in South Sudan has been taken, and my husband and his brothers have been killed, and there is no family over there. And even if I return to South Sudan, I will have to build a house or otherwise establish a livelihood from scratch. So, if my child gets a degree in Uganda and my child chooses to return to South Sudan someday and if my child buys land at that time, I will return too.
- Until my child gets a minimum degree, I would like to stay in Uganda and do my best, even though life is becoming more difficult day by day.

The three were female heads of households, one who had lost her spouse to disease and another who had been widowed after her spouse was killed in South Sudan. They were living with their children in a refugee settlement, and their living conditions were tough and harsh. Despite this, the women's stories showed a strong awareness of their children's education in the refugee settlement. The following is a summary of their attitudes toward education and their children.

- I would be happy if my child got a degree in Uganda, then got a job and supported me.
- I was not allowed to attend school because of my parent's decision. I still wish I could have gone to school, and I do not want my children to have the same regret. Also, if my children can go to secondary school, they will have a better chance to get a job and I may be able to be supported by my children in the future.

On the other hand, some families are struggling to raise money for school fees. One mentioned that "We choose to receive cash instead of the food ration from WFP because it is easier to pay school fees. However, there has been a reduction in the ration. Although I would like to send my children to school, I do not know how to make ends meet within the limited amount of the ration. Thus, at this point, I cannot make a medium- to long-term plan."

Regarding livelihood, one female refugee said, "It is not easy to have a long-term plan to gradually improve my livelihood by earning income from farming and reinvesting it in the land. I would love to farm, but I am losing hope due to poor land conditions and the weather. I have tried but tired of cultivation because of continuous failures." From these statements, it can be confirmed that there is no straightforward way to earn a living.

5) HCs' living conditions and relationship between refugees and HCs

The relationship between refugees and HCs is relatively good. There is a mechanism for cooperation and problem-solving between refugees and HCs and under the cooperation between RWC and LC. NGOs and other partners are also implementing initiatives aimed at social cohesion between refugees and HCs. According to information from interviews with refugees and HC residents, the "peaceful co-existence meeting", an opportunity introduced by the partners, has allowed refugees and HC residents

to meet in the same place and coordinate their views. The meetings have been successful in coordinating the views of both sides. These meetings have helped seek solutions to issues that have arisen between refugees and HCs and to form mutual understanding. They have also become a place for proactive coordination among the residents. Efforts are made daily to maintain and build good relationships among people living in the same community, sharing schools, health facilities, and natural resources.

Among the issues that frequently arise between refugees and HCs, it was observed that there are complaints from refugees about contractual aspects within the land rent and lease, as well as cases of hungry refugees stealing food planted in HCs' fields. For the former, RWC and LC have been witnesses and have taken measures such as recommending making a written contract, not a verbal one. The following was spoken during the group discussion with refugees in the Adjumani Refugee Settlements regarding their relationship with the HCs.

Testimonies by refugees about their relationships with HCs

- All: HC people are generous and good people. We appreciate their acceptance of us in their land. To maintain a good relationship with HCs, we must show good manners. The issue is that some refugees and HC people cannot display such manners, which leads to problems caused by some people. Cases like refugees not paying HCs for land or not properly managing the rented land are refugees' fault. On the other hand, there are other cases where the HCs are at fault.
- A male refugee: When the refugees first arrived in this land from South Sudan, relations were not very good. However, through meetings and other opportunities, we have been building relationships. We have avoided conflict because we are allowed to share this land and the resources there.
- A female refugee: Refugees and HCs are both human beings and will make mistakes. We will discuss such actions with both sides so that we can move in the right direction.

In interviews with HC residents, it was commonly said that they have no problem accepting refugees as fellow human beings, and that they have no problem accepting people in need. In the interviews with HCs in Adjumani District, they showed a favourable attitude toward accepting the refugees and leasing their land, as the people of Adjumani had a history of fleeing into South Sudan as refugees during the civil war in Northern Uganda. After listening to the refugees and HCs in-depth, the conclusion was that building a good relationship as human beings was essential, regardless of their category as refugees and HCs.

The relationship between refugees and HCs, as described above, is not just good, but also mutually beneficial. HC residents are reaping substantial benefits from the presence of refugees. As one HC resident put it, "the biggest benefit is the infrastructure that has been developed". The arrival of refugees has also brought an abundant agricultural labour force and easy access to cheap labour, leading to the development of markets, trading centres, and increased income from business.

3. Surroundings of Cotton Production in Uganda

3.1 International trends in the cotton industry

3.1.1 Position of cotton in all fabric materials

Apart from 2020, the period with the impact of COVID-19, the world's total fibre production has constantly increased since the 1990s, reaching 1.16 billion tonnes in 2022. This means global fibre production almost doubled over the past two decades. Additionally, per capita fibre production worldwide has significantly increased, from 8.3 kilograms in 1975 to 14.6 kilograms in 2022.

When several material types are compared, synthetic fibres have surpassed natural fibres in the mid-1990s to become the largest category. In 2022, total synthetic fibre production reached approximately 76 million tonnes, accounting for about 65% of the total. Among synthetic fibres, polyester has the highest production volume, accounting for around 54% of the total, and produces approximately 63 million tonnes.

Plant fibres, including cotton, jute, hemp, and flax, comprises about 27% of the total. Among these, cotton ranks second in terms of individual production volume after polyester, producing approximately 25 million tonnes, which accounts for about 22% of total fibre production.

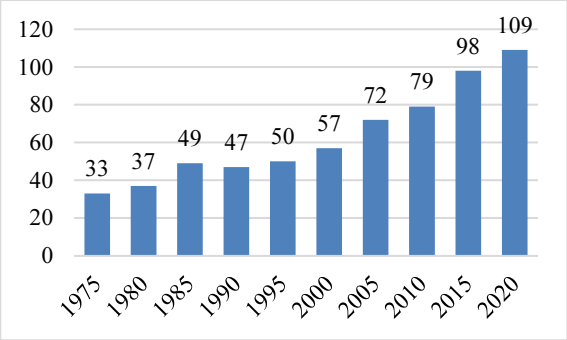


Figure 7: Total fibre production (million tonnes)

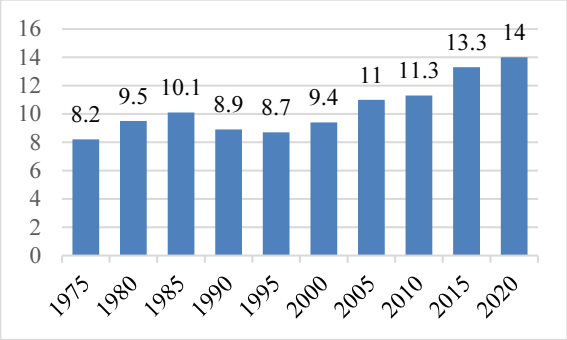


Figure 9: Per capita fibre production (kg/person)

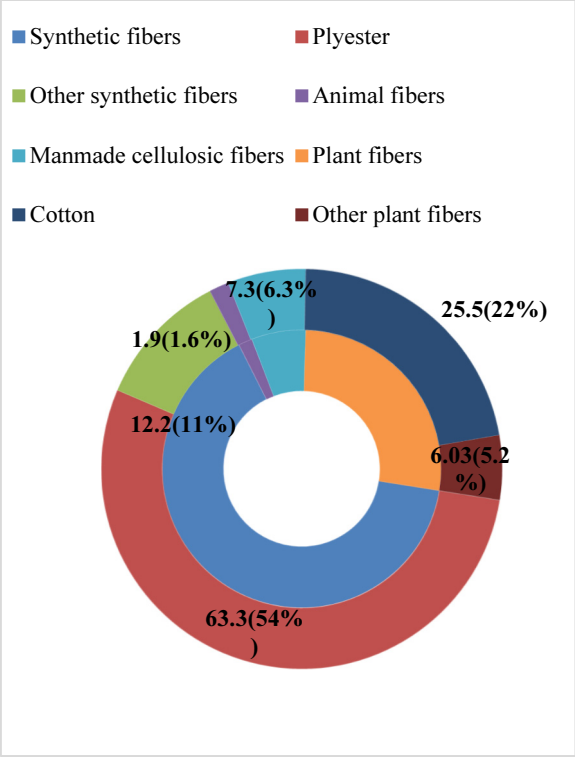


Figure 8: Fibre production by fibre type (2022, million tonnes, %)

Source: "Textile Exchange (2023)", "Materials Market Report 2023"

3.1.2 Global producers, exporters and importers of cotton

Cotton is produced in various countries and regions worldwide. According to statistics by the International Cotton Advisory Committee (ICAC), the country-wise production figures are as follows. The production volume of the top five countries significantly exceeds the rest, accounting for approximately 77% of total production. Uganda consistently ranks between 20th to 30th position in terms of country-wise production volume over several years, falling into the category of very small-scale producers.

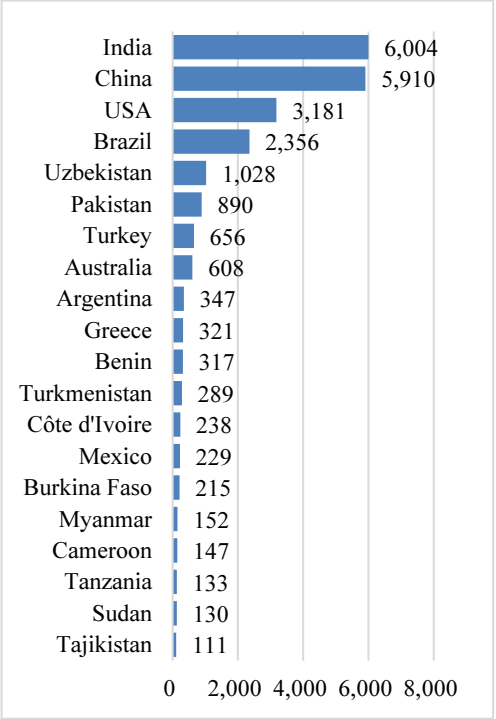


Figure 10: Annual production by country, top 20 (2021-2022, thousand tonnes)

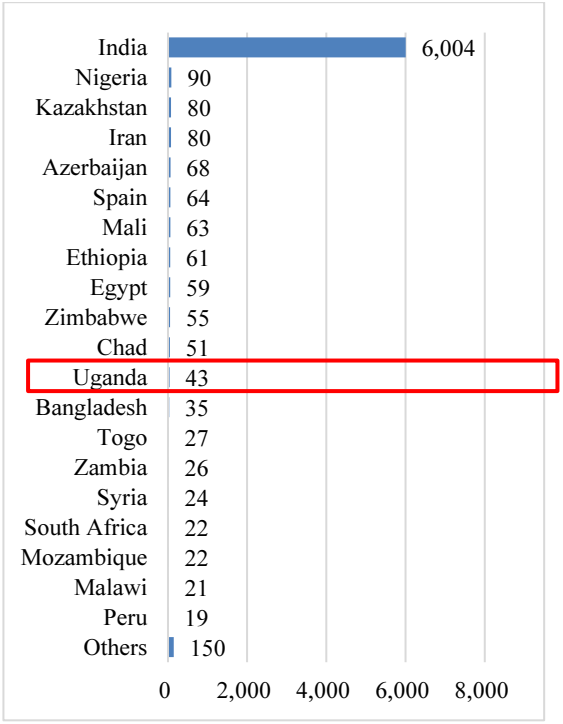


Figure 11: Annual production by country, rank 21 and below, including the top producer, India, for comparison (2021-2022, thousand tonnes)

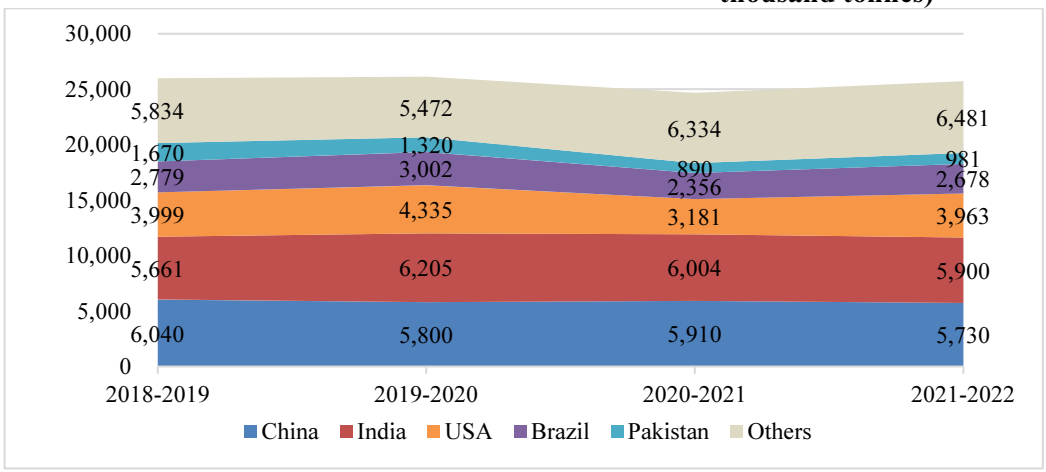


Figure 12: Annual production by the top 5 countries, 2018-2022

Source: International Cotton Advisory Committee. 2022. ICAC COTTON DATA BOOK 2022.

Among the top producing countries, the United States of America (USA), Australia, and Brazil primarily export their production, while China, Pakistan, and Turkey are among the top producers and engage in imports at the same time. On the other hand, India holds the unique status of being big in both production

and exports and still has a certain volume of imports, showing a multi-layered and complex nature of the industry in that country.

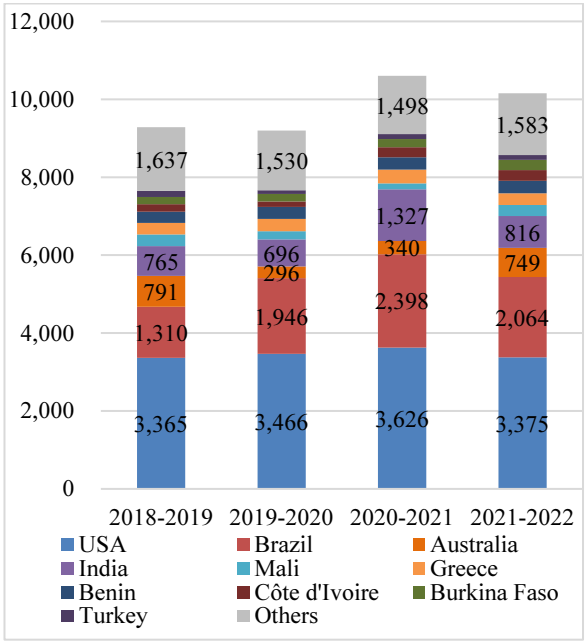


Figure 13: Annual export by country (2021-2022, thousand tonnes)

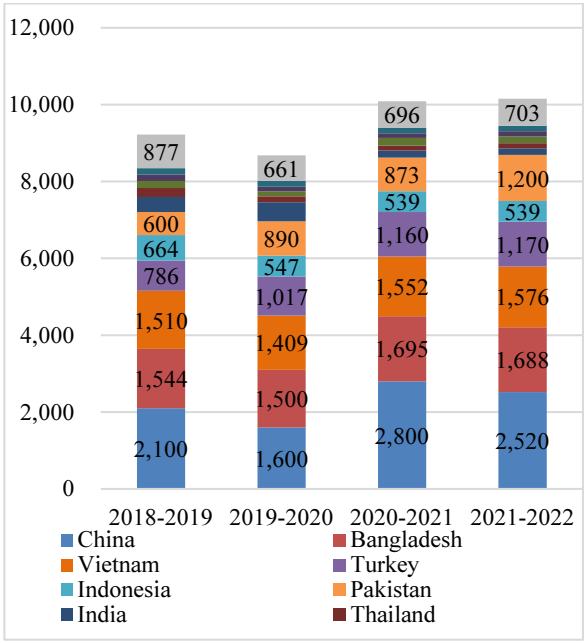


Figure 14: Annual import by country (2021-2022, thousand tonnes)

Source: International Cotton Advisory Committee. 2022. ICAC COTTON DATA BOOK 2022.

Table 12: Dynamics of export and import of cotton producing countries (2021-2022)

Proportion of exports to production			
Country	Production (thousand tonnes)	Export (thousand tonnes)	Ratio (%)
India	5,900	816	14%
China	5,730	30	1%
USA	3,963	3,375	85%
Brazil	2,678	2,064	77%
Pakistan	981	9	1%
Uzbekistan	940	14	1%
Turkey	833	126	15%
Australia	608	749	123%
Argentina	349	122	35%
Mali	340	283	83%
Benin	332	321	97%

Comparison of countries which have combinations of production, export and import			
Country	Production (thousand tonnes)	Export (thousand tonnes)	Import (thousand tonnes)
China	5,900	816	170
India	5,730	30	2520
Pakistan	981	9	1,200
Turkey	833	126	1,170

Source: International Cotton Advisory Committee. 2022. ICAC COTTON DATA BOOK 2022.

3.1.3 Types and characteristics of value-added cotton, trends in demands

(1) Types and producing areas of premium cotton

Cotton is generally classified based on the length of its fibres. The longer the fibres are, the longer it can be spun into long and fine yarns. This classification is as follows:

Table 13: Fibre length and terms

Term	Fibre length
Short staple	Shorter than 21 mm
Medium staple	22-28 mm
Long staple	Longer than 28 mm
Extra-long staple	Longer than 35 mm

Some cotton-producing countries have gained a high position in the market not solely based on their production volume but rather due to the stability of high quality and rarity value through collective efforts as a region, such as variety development, scaling up the production areas, mechanisation, and irrigation. Below are such examples:

Table 14: High-value cotton varieties (compiled by the Survey)

Term	Producing area	Characteristics
Giza Cotton	Egypt	Grown in the Giza region in the area covered by the Nile River of Egypt. It refers to varieties that have been improved so as to be tolerant toward drought in desert environments, producing stable fibre lengths. The improved varieties are registered by the national authority.
Supima Cotton	USA	Supima cotton has its roots traced back to the "Pima" variety developed in the 1910s by crossbreeding of Egyptian and American cotton varieties. It is an extra-long staple cotton produced exclusively in the western and south-western regions of USA. A farmer association established in 1954 protects the trademark. They are also active in utilising new technology such as blockchain to ensure traceability.
Xinjiang Cotton	China	Xinjiang cotton is cultivated in the Xinjiang Uygur Region of China and is distinguished not by the uniqueness of the variety but by the environmental conditions of the region. Large-scale drip irrigation enabled high production efficiency as well as stable quality, and increased the share in the market. While it used to be widely distributed as a well-known branded cotton, concerns over human rights violations against ethnic minorities led to global boycotts around 2021.
Sea Island Cotton	Caribbean Islands	Sea Island cotton originally comes from the West Indies, including Jamaica and Central America, before being attempted in the USA. It is characterised by its long fibre length and smooth texture, but its production volume is quite limited by specific climate requirements and low disease tolerance. It remains scarce, with low production volume, as systematic and collective breeding efforts have not been made as of today.

(2) Value addition by certification systems

The recent trend focuses more on considerations of social responsibility, sustainability, and the environment, and not only the benefits for consumers. Consumers are paying greater attention to the working conditions of the stakeholders (producers and processors) in the supply chains. Reflecting such trends, certification systems with different value focuses are growing.

Table 15: Examples of certification systems

Term	Certified production (thousand tonnes)	Percentage of the total production	Characteristics
Better Cotton	5,411	21.49 %	The Better Cotton Initiative (BCI) is an NGO established in 2009 that implements a system prioritising holistic inclusion rather than demanding 100% purity or traceability of raw materials. It adopts the "mass balance approach" and enhances the membership of over 2,000 companies, including major global players.
Certified Organic Cotton	342	1.36 %	Represented by the Global Organic Textile Standard (GOTS), various organisations operate in multiple countries and regions, some of which are compatible with each other. They usually require third-party audits based on strict criteria, including proving the chemical-free history of the farmland.
Fairtrade	18	0.07 %	Certification by Fairtrade International, founded in 1997, which provides certification aimed at promoting fair trade for small-scale producers and workers in developing countries. It requires all organisations involved in the trade of certified products to undergo audits to ensure traceability. Compared to other commodities, it is not major in cotton certification.

These certification systems adopt different criteria, methods of certification, and levels of required traceability. They sometimes overlap and allow for mutual recognition. In some cases, the same producers or regions may obtain multiple certifications to meet market demands. Responding to the increasing awareness of environmental impact, new certifications have emerged in recent years, such as "Carbon-Neutral" and "Regenerative."

Some cotton-producing countries have established their own certifications for domestic production, such as the Israel Cotton Production Standard System (ICPSS), U.S. Cotton Trust Protocol®, and Responsible Brazilian Cotton (ABRAPA's Algodão Brasileiro Responsável).

While total global cotton production has remained stable over the past decade, the proportion of cotton with added values through these certifications has steadily increased. In 2011/2012, it accounted for only 3%, but by 2021/2022, it had expanded to 27% of the total.

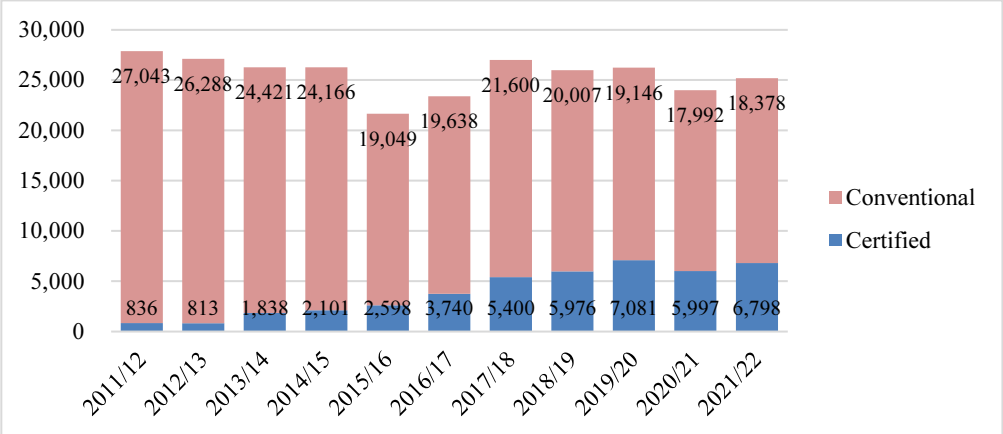


Figure 15: Proportion of certified cotton in total production (thousand tonnes)

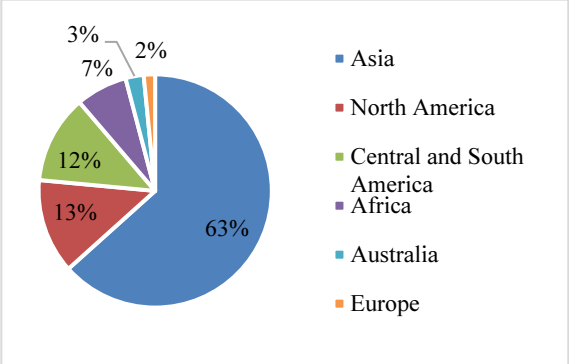
Source: Textile Exchange (2023), "Materials Market Report 2023"

3.2 Positioning of Ugandan cotton in the international market

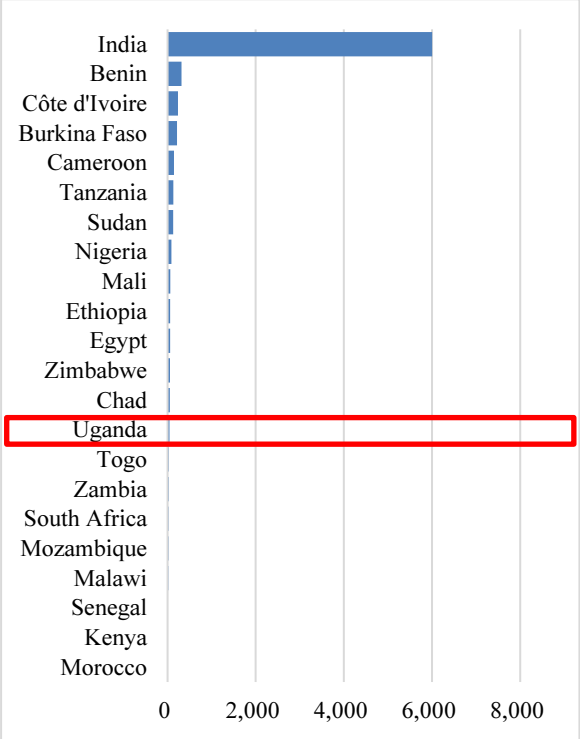
3.2.1 Characteristics of African cotton-producing regions in the global market

As already mentioned, a few top-producing countries dominate the majority of production in terms of volume in overall global production. Given this market structure, cotton produced in around 20 countries across the African continent accounts for only around 7% of the total production.

In the majority of the top-producing countries, highly mechanised methods are employed on large-scale farmland, ensuring highly efficient production. In contrast, in many African cotton-producing regions, farming methods remain labour-intensive and low-input, perpetuating the practices introduced during the colonial period that are left unchanged as of today.



(Above) Figure 16: Regional distribution of cotton production (2021-2022, %)



(Right) Figure 17: Annual cotton production (lint) by country in the African continent (2021-2022, thousand tonnes), including the top producer, India, for comparison

Source: Textile Exchange (2023), "Materials Market Report 2023", edited by the Survey team

If solely focused on production efficiency, the farming practices in Africa might be marked as unsophisticated. However, among cotton-producing nations in Africa, many farmers rely significantly on cotton as a main commodity to be exported. In such countries, cotton still plays an essential role as a cash crop for individual households and the economy of rural farming communities.

On the market side, there is a growing interest in new concepts among consumers, such as environmental awareness and corporate compliance regarding human rights violation in the supply chain. Consequently, the trend re-evaluates the potential value of cotton produced by "traditional" farming methods.

Mechanised, large-scale production in USA
(Photo by the Survey team)

Harvesting cotton by hand-picking in Yumbe District, the West Nile Sub-region, Uganda
(Photo by the Survey team)

3.2.2 Strategies of other cotton-producing regions in Africa

As mentioned in the previous section, there is a critical difference in production methods between large-scale producers like the USA and small-scale producers like Uganda in Africa. Due to the significant disparities in the given conditions, Uganda cannot simply learn from the leading cotton-producing countries. Therefore, this section compares other cotton-producing countries in Africa to extract their characteristics as case studies.

The table below shows the production volumes of the characteristic African cotton-producing countries and the share of their cotton production that has been granted certification.

Table 16: Annual production of cotton by country, Proportion of certified production (1: African countries with large production volume)

Country	Annual production (2021-2022, tonnes)	Proportion of certified production[27]
Mali	340,000	56%
Benin	332,000	19%
Côte d'Ivoire	216,000	104%
Burkina Faso	208,000	97%
Sudan	131,000	0%
Cameroon	24,000	103%
Chad	7,000	109%

Source (production volume): International Cotton Advisory Committee "Cotton Production Data Portal", online, accessed on 29/03/2024.
Source (proportion of certified production): Textile Exchange (2023), "Materials Market Report 2023"

(1) Countries with large production scale but no special value addition strategies

Mali, Benin and Sudan have large volume cotton production in the African region and hold significant presence as cotton-producing players in the region. While the differences in their land areas, such as in Mali (1,240,192 km2) and Sudan (1,861,484 km2), may affect their production scale, this explanation does not apply to Benin (112,622 km2), which is roughly half the size of Uganda (241,038 km2). However, attempts to add value through certifications, like those described in the previous section, are not practiced at all or are very limited in these countries.

[27] More than 100% of cases are due to the same production area or producer organisation having several certifications at the same time.

(2) Countries with relatively smaller production scale but with active value addition strategies through certification

Cameroon and Chad are not particularly large in terms of production scale, but the entire country production is certified with CmiA (Cotton made in Africa), showing clear targeting of certain markets.

(3) Countries with both scale and added value

Côte d'Ivoire and Burkina Faso have relatively large production scale, and at the same time show higher proportions of certifications.

These two countries are both former French colonies located in West Africa, and their cotton industry's development has strong connections with policies in the colonial era[28] whose influences persist as of today. In Uganda, cotton production was also introduced during the colonial era by the British government[29]. However, the following domestic conditions, socio-economic situations, and the role played by the former colonial government in development of domestic industries differ significantly.

Nevertheless, despite these differences, certifications for value addition are relatively new trends, and the large coverage of modern production systems can be attributed to the recent policy after the transition to the present production regimes. Considering the practices of using certification systems, the utilisation of such initiatives in other countries is informative when comparing how each country facilitates its cotton industry.

3.2.3 Characteristics of Uganda as a cotton-producing country

As mentioned earlier, Uganda ranks among the smallest cotton-producing countries globally and the smallest cotton-producing country in the African region. Moreover, there are not many active efforts observed in initiatives such as branding with premium varieties or international certifications targeting value addition.

Table 17: Annual production of cotton and proportion of certified production in Uganda

Country	Annual production (2021-2022, tonnes)	Proportion of certified production
Uganda	45,000	6%

Source (production volume): International Cotton Advisory Committee “Cotton Production Data Portal”, online, accessed on 29/03/2024.
Source (proportion of certified production): Textile Exchange (2023), “Materials Market Report 2023”

3.3 Current situation of the cotton industry of Uganda

3.3.1 Positioning of cotton in agricultural industry

(1) Positioning in trade statistics

Cotton is classified as one of the “Traditional Export Items” along with coffee, tea, and tobacco in trade statistics published by the Uganda Bureau of Statistics (UBOS). However, according to the latest statistics in 2021, cotton consistently ranks lowest among the four items in terms of export value over the past three years. It ranks 13th among agricultural products and contributes only 1.3% in terms of proportion, indicating that its position is not particularly high.

[28] MASAKI, Toyomu. 2007. "Cotton Initiative and Cotton Production in Four West and Central African Countries" in 2006 Report on the South America and Africa Regional Food and Agriculture Survey Analysis.
[29] World Bank (2009) “The Cotton Sector of Uganda”, Africa Region Working Paper Series No. 123

Table 18: Ranking of cotton in export statistics (2019-2021)

	Item	Traditional export commodity	Export value (thousand USD)			Proportion in the total (2021, %)
			2019	2020	2021	
1	Coffee	✔	438,544	515,534	718,959	45.5
2	Fish and processed fish		174,163	124,898	116,165	7.4
3	Cacao		77,548	99,071	105,844	6.7
4	Beans and legumes		37,329	46,423	102,339	6.5
5	Sugarcane and processed sugar		82,132	75,142	98,478	6.2
6	Tea	✔	77,957	78,672	84,958	5.4
7	Tobacco	✔	74,877	49,722	71,089	4.5
8	Flower		54,284	53,854	68,873	4.4
9	Maize		71,044	92,110	52,067	3.3
10	Sesame		32,858	35,656	32,407	2.1
11	Vegetables		19,120	23,947	26,010	1.6
12	Livestock		563	10,165	22,086	1.4
13	Cotton	✔	58,199	34,798	20,520	1.3
14	Sorghum		36,106	12,169	17,052	1.1
15	Other fruits		8,476	13,384	9,714	0.6
16	Vanilla beans		4,474	2,896	8,678	0.5
17	Soybean		4,206	13,794	8,462	0.5
18	Rice		25,786	18,619	4,890	0.3
19	Chilli		534	2,208	4,870	0.3
20	Banana		2,670	3,539	3,605	0.2
21	Peanut		1,602	1,386	1,416	0.1

Source: Extracted from UBOS (2022), "STATISTICAL ABSTRACT", edited by the Survey team

(2) Development policy of cotton

Cotton does not hold the status of a prioritised crop in the national agricultural policy. However, according to CDO, based on the National Planning Authority's NDP III formulated in 2019, cotton is featured under the "Agro-industrialisation" section and its key areas to be worked on are identified as "Production and Productivity "and "Value Addition". The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and CDO follow this understanding and plans the guidelines for policy development accordingly.

Table 19: Actions for "Production and Productivity" by CDO based on NDP III

Category	Content
Support for research and development	- "Cotton Research Program" is conducted at a branch of the National Agricultural Research Organisation (NARO) in Serere, Eastern region.
Support for producers	- Conducted jointly by CDO and UGCEA. Distribution of seeds and agricultural inputs and technical extension services.
Quality control	- CDO dispatches technicians to ginners and gives instruction regarding proper use and maintenance of ginning machines. - Quality checks performed at the CDO lab. - Technical assistance through UGCEA extension officers to reduce contamination.

Table 20: Actions for "Value Addition" by CDO based on NDP III

Category	Content
Support for cotton processors in the country	- CDO purchases and stores certain volume of domestically produced cotton for domestic processors such as spinning mills and garment factories. The domestic processors can access the raw materials that they need when they need them, without covering the cost of storage and the cash-flow to secure the raw materials.

In his April 2024 address, President Museveni expressed concern about Uganda's importation of used clothing and its textile industry, which produces only a few finished products and exports most of its cotton as raw material, despite Uganda having ample domestic demand for clothing. He emphasised the importance of adding value to the country's raw materials.

As a specific example, he mentioned a textile company, Nytil, which employs 1,500 people, most of them women. He stated that if textile processing, such as weaving and sewing, were carried out on a scale that covers domestic demand, it could generate employment equivalent to 11 times that number. At the time of this report's preparation, comprehensive measures to promote the domestic textile industry had not been taken. However, a law is currently being enacted to completely ban the import of used clothing, which is believed to be an obstacle to the development of the domestic textile industry.

3.3.2 Trends in cotton production in Uganda

(1) Fluctuation in cotton production

According to statistics from the CDO, as shown below, the production of cotton in Uganda has fluctuated over the past 10 years from 2014-2015 to 2022-2023. There is a significant difference of more than three times between the 2020-2021 season, which experienced a decline in yield due to unfavourable weather conditions, and the favourable 2017-2018 season.

(2) Price fluctuation of cotton

According to CDO statistics, the purchasing prices of cotton (including both the minimum price determined by CDO and the actual market price) during the same period have shown the trend as presented in Figure 19. The minimum purchasing price, called the "indicative price", is determined through consultations with UGCEA based on trends in the international market prices and the domestic supply-demand balance. Apart from the irregularly high prices during the 2021-2022 season, there has been a stable rising trend in prices.

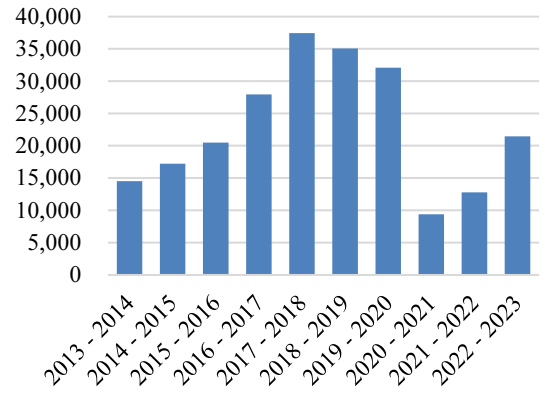


Figure 18: Production of lint cotton[30] (tonnes)

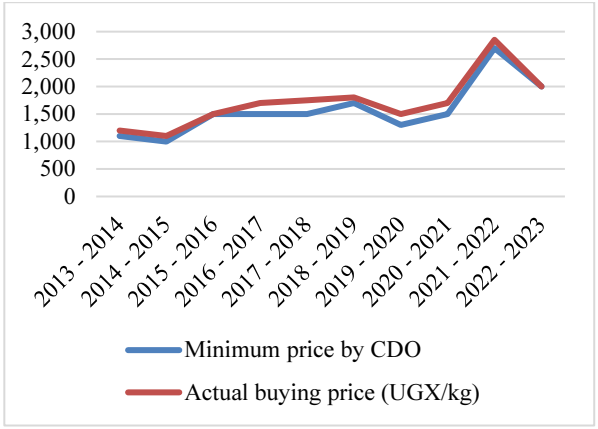


Figure 19: Price fluctuation of seed cotton[31] (UGX/kg)

[30] Cotton fibre after removing seeds
[31] Cotton which includes cotton seeds inside, called "seed cotton"

3.3.3 Characteristics of cotton as an agricultural commodity in Uganda

As mentioned above, while cotton does not hold an important status in terms of trade statistics or policy compared to other commodities, it still shows distinctive elements implying its past significance as an export crop from the colonial period, the 1920s, to around the country's independence in the 1960s.

(1) Publicly determined buying prices

CDO determines and widely announces the minimum prices, or indicative price, for purchasing seed cotton from producers, based on trends in the international market prices and through discussions with UGCEA.

(2) Precise statistics

Cotton, being a crop that is not consumed locally by farmers, and which has little regional distribution, passes through ginneries, the first processing facilities, so their quantity can be formally captured at the ginneries. CDO dispatches its staff stationed at each ginnery throughout the season to track the shipping quantities from each ginnery. This is a unique characteristic not found in other commodities, particularly in a country where agricultural statistics are not always reliable.

(3) Quality control scheme through collaboration between government agencies and private enterprises

CDO, as a government agency, operates a lab as a quality-checking facility and conducts quality tests based on the shipping lots of private enterprises.

(4) Technical extension services through collaboration between government agencies and private enterprises

UGCEA, representing private enterprises in the industry, and CDO, as a government agency, jointly operate technical extension services. Details are provided in section "4.1 Cotton extension service" below.

3.3.4 Distribution of stakeholders in the cotton industry of Uganda

(1) Geographical distribution of cotton production in Uganda

Cotton-producing areas of Uganda are distributed across the Northern to Eastern parts of Uganda, and some parts of the Western region as shown in Figure 20. Therefore, ginneries which conduct the primary processing are also located around cotton production areas.

As shown in Table 21, the Northern part of Uganda dominates in terms of production volume. When looking at the Eastern and Western parts of Uganda, there is a higher number of ginneries compared to the production volume of raw cotton (seed cotton), indicating that each ginnery operates at a very small processing scale and shares raw material supplies by many processors. This is attributed to the history of these areas as cotton-producing areas in the past[32].

[32] Horna, Daniela, ed.; Zambrano, Patricia, ed. and Falck-Zepeda, José Benjamin, ed. 2013. Socioeconomic considerations in biosafety decision-making: Methods and implementation. IFPRI Research Monograph. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896292079

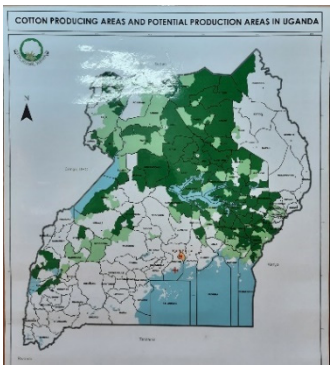


Figure 20: Cotton-producing areas (dark green: existing producing areas, light green: potential producing areas)

Source: CDO

Table 21: Annual cotton production by area (2022-23)

Area	Seed cotton production (tonnes)	Lint cotton production (tonnes)	No. of ginneries
Northern (excluding West-Nile)	24,994	10,049	9
Western	10,914	4,414	7
Eastern	8,714	3,496	11
West Nile	5,812	2,411	2
Central	643	268	1
Total	51,077	20,638	30

Source: Statistics by CDO (2022-2023), edited by the Survey team

(2) Profile of entities running ginneries in Uganda

According to CDO, there were 30 registered ginneries for the season of 2022-2023 and 26 among them made shipments for the season. While CDO manages information at ginnery level, the following figure and table combine ginnery-level production volumes with a list of entities, so that the enterprises which run several ginneries can be identified accordingly. As per this information, 64% of the total production comes from the top three companies, marking a far larger volume compared to the rest. This shows that companies ranked fourth and below are significantly small-scale entities.

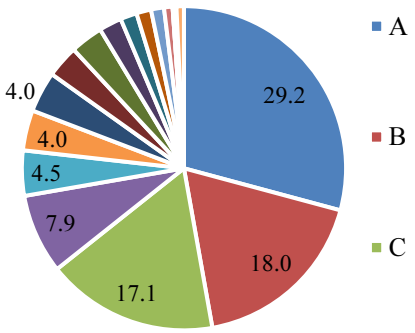


Figure 21: Proportion of each enterprise within total production (2022-23, %)

Source: CDO, edited by the Survey team

Table 22: Number of ginneries which each enterprise runs (2022-23)

Rank	Company	No. of ginneries
1	A	3
2	B	5
3	C	5
4 and below	Others	15
	Unknown	2
	Total	30

Source: CDO, edited by the Survey team

4. Current Status of Cotton Production and Extension in Uganda

4.1 Cotton extension service

In the West-Nile and Acholi Sub-regions the Survey targeted, there are two extension systems for cotton production operated: one for conventional cotton under the UGCEA and one for organic cotton by GADC, a ginnery that deals with organic and certified cotton. These extension services do not overlap but are independent and work on their lines.

4.1.1 Extension system of ordinal cotton production

Staff employed by the UGCEA have implemented a cotton extension system. As shown in the table below, the system has a cascade structure, covering a wide range of cotton farmers.

Table 23: Extension system under UGCEA

Position	Functions and roles
Country Coordinator	• Overall management of UGCEA's extension system.
Field Supervisor	• Supervision of different districts as an area (i.e., the Field Supervisor in West-Acholi supervises four districts, namely Gulu, Amuru, Nwoya and Omoro Districts). • Supervision and guiding of Area Coordinators. • Monitoring and data management of the area of responsibility (i.e., data on farmers, acreages, and production volume). • Planning of quantity and type of pesticide that will be distributed to farmers from UGCEA on credit. • Calculating and securing the amount of seeds needed in the area of responsibility.
Area Coordinator	• Two to three coordinators are allocated per district. • Each Area Coordinator supervises and gives technical guidance to several Site Coordinators, playing a central role in technical guidance within the extension system and providing technical guidance to the Site Coordinators and Lead Farmers. • Managing data on farmers, acreage, and production volume in the assigned area. • Assisting in marketing harvested products to ginners. • Managing and collecting credits for seeds and pesticides distributed by UGCEA.
Site Coordinator	• Ideally, one person would be assigned to each Sub-county, but staffing has been significantly reduced due to budget difficulties. • The number of Lead Farmers per Site Coordinator varies greatly from place to place. • Not a regular staff member but paid by an honorarium. • Sales credit management of seeds and pesticides distributed by UGCEA on credit. They collect a partial commission on sales (selling a pesticide actually costed at UGX 3,000 by UGX 3,500), which is used as an incentive. • Supervising Lead Farmers, providing technical guidance and conducting field monitoring. • Collecting data on Lead Farmers, their production acreage and volume.
Lead Farmer	• Organising and coordinating cotton farmers. • Their cultivation techniques are often superior to ordinary farmers, and they may provide technical guidance. • Collecting data on farmers under their supervision, their production acreage

Position	Functions and roles
	and volume. • Sales credit management of seeds and pesticides distributed by UGCEA on credit. They collect a partial commission on sales (selling a pesticide actually costed at UGX 3,000 by UGX 3,500), which is used as an incentive (same function as Site Coordinator). • Free seeds and four bottles of pesticides are available as incentives. • Previously, a bicycle was provided as an incentive.
Farmer	• Cotton farmer

Source: Created by the Survey team

The number of farmers and the area under cultivation covered by the UGCEA in the West Nile and Acholi Sub-regions are as follows.

Table 24: Coverage farmer and acreage by area under UGCEA

Area (district name)	No. of farmers	Production area (acres)
West West-Nile Area (Yumbe, Arua, Nebbi and Madi-Okollo)	22,240	24,400
East West-Nile Area (Adjumani, Moyo and Obongi Districts)	N/A	6,000
West Acholi (Gulu, Amuru, Nwoya and Omoro Districts)	6,000	N/A
East Acholi (Kitgum, Lamwo, Agago and Pader Districts)	20,000	N/A

Source: Created by the Survey team

Although the extension system is organised and covers a wide area described above, there were considerable staff reductions several years ago due to UGCEA's budget shortfalls. In addition, during this survey period, there were further staff reductions, as Field Supervisors and Area Coordinators were placed on temporary leave. According to interviews at CDO, the UGCEA extension system would be shifted to integration into the extension system under the MAAIF, where the general agricultural extension officer will be responsible for cotton extension.

In the current UGCEA extension system, seeds and pesticides are offered in two forms: cash sales or credit deductions from the harvest. In the latter case, farmers do not have to make an initial investment, which provides an incentive to continue cotton cultivation. In areas where cotton cultivation is already thriving, the demand for seeds and pesticides is high, so the farmers often sell their products for cash. On the other hand, in areas such as Yumbe District, where cotton cultivation is newer and cotton production is still being promoted, inputs are often provided on credits. However, the repayment rate is very poor, sometimes less than 50%. The UGCEA, which is in a position to encourage cotton production, does not want to cause farmers to leave cotton production by strongly demanding repayment from farmers who have not repaid their loans, so they only verbally persuade farmers who have not repaid. As a result, cotton farmers' awareness of credit repayment tends to be low, resulting in a low repayment rate.

Regarding pesticide, the total amount of pesticides provided to cotton farmers is very limited in comparison with demand. Interviews with the Coordinators confirmed that UGCEA extension agents do not actively encourage organic cotton farmers to use pesticides because they are limited in the amount of pesticides they can provide and do not have enough to offer to farmers currently producing conventional cotton. With UGCEA's operating budgets shrinking and the extension system set to be radically reorganised in the near future, it is unclear how much of the pesticide supply and credit system can be maintained, and conventional cotton farmers may find it more challenging to access pesticides.

4.1.2 Extension system of organic cotton production by GADC

GADC has established its own organic cotton extension and purchase system, independent of those of UGCEA's system. However, according to information obtained during the field survey, there are cases where Site Coordinators and Lead Farmers working under the UGCEA system are engaged in organic cotton extension and purchasing. Although the systems operate in parallel, in reality, grassroots personnel work across both systems.

GADC's extension system is similar to that of UGCEA, with Senior Area Coordinators assigned to each of GADC's three ginneries (Gulu, Rhino Camp, and Kitgum) to oversee the entire cultivation area covered by each ginnery. Under Senior Area Coordinators there are Area Coordinators, Field Officers, and Lead Farmers, with Lead Farmers organising organic cotton farmers.

This extension system tended to function well when GADC was undertaking donor and other projects and utilising external resources. Still, it has become challenging to maintain the systems within GADC's budget. GADC is currently reorganising, temporarily reducing the scale of its operations and reorganising its structure.

4.2 Cotton research programs

The National Semi-Arid Resources Research Institute (NaSARRI) is one of 16 public agricultural research organisations under NARO. The station is located in the Eastern Agro-Ecological Zone (Teso Sub-region) in Serere District. NaSARRI is organised into four research programs: the Oil Crops Program, the Dry Land Legumes Program, the Cotton Program, and the Dry Land Cereals Program.

4.2.1 Overview of the cotton research program at NaSARRI

In the cotton program, research activities are conducted in four areas under the Program Leader: Breeding, Agronomy, Pathology, and Entomology. Each field has one researcher and one or two technicians, with Research Associates dispatched to each field from CDO. Additionally, the Director of NaSARRI is also a board member of CDO. The research activities budget is allocated by the Ugandan government and experiments are conducted at the research station in Serere District. Additionally, when budgets are provided by aid agencies or CDO, experiments are set up outside the station. Currently, CDO has provided a budget for seed multiplication. Although there is a laboratory within the station capable of producing biopesticides established with support from the Indian government, it is underutilised due to budget constraints.

4.2.2 Research activities in each area of the cotton research program at NaSARRI

The breeding field primarily focuses on the conservation of genetic resources, breeding, and seed multiplication. The BPA2015A and BPA2015B varieties newly developed by NaSARRI are currently undergoing National Performance Trials (NPT). NPT is necessary for variety registration and is conducted for at least two growing seasons in at least two agro-ecological zones[33]. These varieties underwent one season of trials, but the second season has not been conducted due to budget constraints.

The agronomy field conducts experiment to establish cultivation standards such as planting density, fertiliser application, sowing period, and weed control. Currently, a trial using the "Fertiplus" organic fertiliser recommended by the CDO is ongoing. A trial of chemical fertilisers had already been conducted, and application standards were established. An intercropping experiment, by cultivating legumes and sunflowers between rows of cotton planting, is also being carried out with the aim of increasing farmers' income per unit area[34]. A trial of ratoon cultivation for seed multiplication is yielding positive results.

[33] Ministry of Agriculture, Animal Industry and Fisheries, Procedures for registration of a crop variety: https://www.agriculture.go.ug/wp-content/uploads/2023/01/Procedures-for-registration-of-a-Crop-variety.pdf
[34] It was not intended to control pests and diseases.

The pathology field has two main activities: a variety trial to evaluate resistance to Bacterial Blight and Fusarium Wilt, and a trial of seed coating effects. In variety trials, newly acquired materials are tested for their disease-resistant abilities through inoculation and grow-out tests. Seed coating tests, aiming to control Bacterial Blight, have tested several active ingredients, with Boronopol seed coating showing promising results in suppressing the disease.

The entomology field also conducts variety trials focusing on insect tolerance abilities. Because varieties with abundant trichomes (hairs on leaves and stems) tend to be more resistant to sap-sucking pests and have higher drought tolerance, entomologists focus on this trait and contribute to the development of new varieties alongside breeders and pathologists.


Interview with NaSARRI researchers


Seed multiplication field


Variety trial field


Fertiliser trial


Inter-cropping trial with soybean


Biopesticide laboratory

4.2.3 Challenges in the cotton research program in Uganda

The research system has been well-established in the long history of Ugandan cotton production, as evidenced by the presence of four dedicated researchers in four major fields.

Currently, there are still numerous technological challenges in cotton production in Uganda, such as breeding climate-change-resistant, disease-resistant, and long-fibre varieties, establishing economically viable fertilisation techniques, establishing integrated pest and disease management techniques, and establishing organic cultivation techniques. In this context, the role to be played by NARO-NaSARRI remains crucial, and efforts to address these challenges are vital for the future of cotton cultivation in Uganda.

It is significantly important that the three stakeholders, namely CDO, UGCEA, and NaSARRI-NARO, further strengthen their cooperation and work together to address the above technological challenges.

4.3 Cotton growing conditions in the West Nile and Acholi Sub-regions

4.3.1 Environment for cotton cultivation

The climate of the Acholi and West Nile Sub-regions, which are the target areas in the Survey, is classified as Savannah climate in the Köppen climate classification[35]. Figure 22 shows the monthly average temperatures and precipitation for representative cities in both regions. In Gulu City (the Acholi

[35] Wikipedia "Köppen climate classification"; https://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification

Sub-region), the annual average temperature is 23.9°C, with an annual precipitation of 1,584 mm, while in Arua City (the West Nile Sub-region), it is 23.0°C with 909 mm. As cotton cultivation is considered suitable with average temperatures above 25°C and precipitation of over 500 mm[36], the meteorological conditions in both regions are conducive to cotton cultivation.

Cotton thrives in soils with a pH range of 5.5 to 8.5, and sandy loam to loamy soil that is well-drained is preferred[37]. Table 25 presents the soil test results of samples collected from cotton farmers' fields in the target area. According to these results, soil pH and physical properties in both sub-regions are suitable for cotton cultivation. Among the soil nutrient analysis values, both total nitrogen and available phosphorus were approximately only 10% of the values typically expected. Inquiries were made to researchers at the National Agricultural Research Laboratories (NaRL), responsible for the analysis, and they responded that the accuracy of the analysis values is guaranteed by NaRL. However, even if these values were ten times higher, it would still be necessary to supplement nitrogen and phosphorus through fertiliser application to achieve optimal cotton yield. On the other hand, it was found that exchangeable cations, including potassium, were present in sufficient quantities in the soil. Therefore, the application of DAP fertiliser was suggested to be effective in increasing cotton yield.

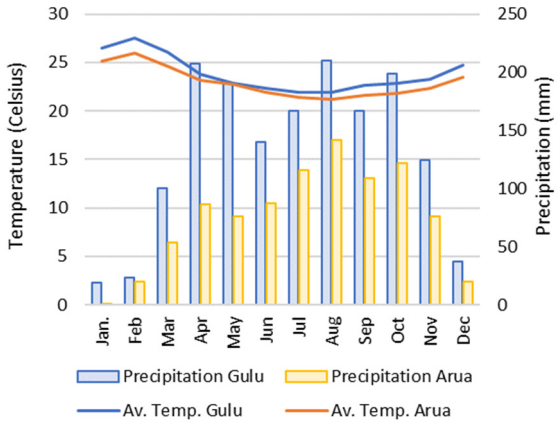


Figure 22: Monthly average temperatures and precipitation for Gulu city (Acholi Sub-region) and Arua city (West Nile Sub-region) from 1991 to 2021

Data source from Climate-Data.org. https://en.climate-data.org/

Table 25: Soil test results of samples collected from cotton farmers' fields in Acholi and West Nile Sub-regions*

	No. of Samples	Soil pH	Organic Matter (%)	Total Nitrogen** (%)	Available P** (ppm)	Exchangeable cations			Soil physical properties			
						Ca (ppm)	Mg (ppm)	K (ppm)	Sand (%)	Clay (%)	Silt (%)	Soil type
Acholi	5	6.1	2.02	0.02	1.18	1897	257	131	60	17	22	Sandy loam
West Nile	6	6.5	1.20	0.05	1.58	1906	192	128	69	13	17	Sandy loam
Total	11	6.3	1.65	0.03	1.38	1901	227	130	64	15	20	Sandy loam
S/D		0.5	0.75	0.02	1.30	322	199	71	5.6	3.7	2.2	

*The test was conducted in Soils, Agro-meteorology and Environment Unit, National Agricultural Research Laboratories (NaRL)– Kawanda

**Although the analysis values for nitrogen and phosphorus were only 10% of expected levels, Dr. Kayuki Kaizzi from NaRL, responsible for the analysis, assured the accuracy of these values.

4.3.2 Cotton varieties

Cotton, classified botanically under the genus *Gossypium spp*., is a member of the Malvaceae family. There are four cultivated species known. The varieties grown in Uganda belong to the *G. Hirsutum*, commonly known as Upland cotton. Originating in the New World, this species accounts for approximately 90% of global cotton production and is the most widely cultivated species worldwide.

[36] Agriculture, Forestry and Fishers, Republic of South Africa, 2016, Cotton Production Guideline: https://old.dalrrd.gov.za/Portals/0/Brochures%20and%20Production%20guidelines/Cotton%20production%20guideline.pdf

[37] Dr. Ashirbachan Mahapatra, MSSSoA, CUTM, Cotton (Gossypium hirsutum): https://courseware.cutm.ac.in/wp-content/uploads/2023/07/Cotton-1.pdf

In Uganda, cotton varieties have been developed based on two varieties introduced from USA since cotton cultivation began in 1903. These are the Uganda Bukalasa Pedigree Albar (referred to as "BPA") and Serne Albar Type Uganda (referred to as "SATU") strains[38]. Currently, NARO is focusing on the BPA strain for breeding purposes (as detailed in 4.2, "Cotton research programme").

The cotton varieties currently cultivated in Uganda are QM301, SZ-9314, and CRI-MS1, all introduced from Zimbabwe by the CDO in 2018. According to CDO, UGCEA, and GADC, these varieties might exhibit superior yield, early maturity, disease resistance, and lint quality compared to previous BPA strains. However, in interviews, many technicians indicated diminishing varietal characteristics after over-multiplication. Therefore, it is expected that the new BPA strain variety developed by NARO will be widely adopted by farmers as soon as possible. Additionally, in the long term, the development of climate-change-resistant, disease-resistant, and long-fibre varieties is also necessary.

In crop production, variety selection is a crucial factor as it directly affects productivity and marketing. Therefore, it is essential to have a system in the research and development sector to verify variety characteristics and maintain foundation seeds through trials. Uganda has a system of variety registration by the National Seed Certification Service (NSCS). Since CDO is "organisation shall be to promote and monitor production and marketing of cotton and represent all aspects of the cotton industry"[39], it is expected to collaborate with NARO in the future to develop, register, and disseminate new varieties.

Currently, the cultivation of genetically modified organisms (GMO) crops is regulated within Uganda[40] though NARO had conducted trials for only two years from 1990 to 1991.

4.4 Advantages and disadvantages of cotton cultivation for farmers

The advantages and disadvantages of cotton cultivation for farmers, revealed from interviews with cotton farmers, are summarised as follows.

4.4.1 Advantages for farmers

(1) Production materials available on credit: "No initial capital required"

As mentioned in "4.1. Cotton extension service", cotton seeds are distributed on a credit basis by UGCEA, and the cost of the seeds is offset from the sales amount of seed cotton. The same system is applied to pesticides. Therefore, farmers can cultivate cotton with zero initial capital investment in materials[41], which is a unique advantage for cotton.

(2) Wide adaptability to soil: "Can be grown anywhere"

Cotton has a wide adaptability to soil and can be cultivated in relatively any field, making it easy to incorporate into existing cropping systems.

(3) High climate change resilience: "Can survive even in unfavourable weather"

The recent unpredictable weather patterns pose significant challenges for farmers. Even staple crops like maize experience reduced yields, while weather-sensitive crops such as vegetables may be destroyed. Cotton, however, demonstrates relative resilience to such erratic weather. While yield reductions may occur, cotton crops are unlikely to be destroyed, ensuring some cash income.

[38] Cotton Development Organization (http://cdouga.atspace.com/index.html)
[39] UGANDA COTTON DEVELOPMENT ACT.https://ugandatrades.go.ug/media/Uganda%20cotton%20development%20Act.pdf
[40] D. Horna, M. Kyotalimye, J. Falck-Zepeda, Cotton Production in Uganda: Would GM Technologies be the Solution?, Contributed Paper prepared for presentation at the International Association of Agricultural Economists Conference, Beijing, China, August 16-22, 2009
[41] Labour costs for field preparation or weeding are necessary if hiring labourers, but this is comparable to the conditions for other field crops.

(4) No damage from wild/domestic animals: “Not eaten by animals”

In the West Nile and Acholi Sub-regions, livestock such as cattle and goats tend to graze freely without restraint, and crops like maize and sorghum are sometimes damaged by feeding. Additionally, wild animals like warthogs and monkeys may damage them. Thus, farmers need to patrol their fields even when not actively farming. However, since animals do not feed on cotton plants, farmers do not need to visit the field frequently as they do for other cereal crops, and there is no risk of yield reduction due to animals.

(5) Easy post-harvest management: “Does not rot”

Cereals, legumes, and sesame may develop mould if improperly managed after harvesting, and vegetables may perish if not sold immediately. However, since cotton simply needs to be sun-dried for 1-2 days after harvesting, it is a crop that requires relatively simple post-harvest processing and storage.

(6) Guaranteed cash income: “Savings in the field”

While food crops have the advantage of being usable for both food and cash income purposes, it may be difficult to estimate how much cash income can be expected due to their consumption as food. Conversely, cotton, which is not consumed as food, reliably generates cash income. Trusted as a form of income security, some farmers referred to cotton as “savings in the field”.

(7) No effort or cost required for selling products: “Easy to sell”

When selling ordinal field crops, farmers need to walk to the market or to cover transportation costs. Moreover, the selling price and whether they can be sold depend on the market conditions at the time. If failing to sell, they must bring it back home. There are also limits to the amount that can be transported and sold at once. In the case of cotton, local collection points are set up in the community, or middlemen may even come directly to the residence to pick it up. There is less risk of missed sales and being able to convert the entire amount to cash at once. Many advantages exist in terms of marketing.

4.4.2 Disadvantages for Farmers

(1) Yield reduction due to insect damage: “High prevalence of insect pests”

Cotton plants are heavily damaged by insects, and their species are varied, including Bollworm and Cotton Stainer (*Dysdercus spp.*).

(2) Intensive labour required for weed and insect control: “Labour-intensive crop”

Pesticide spraying needs to be done four times or more to control insect damage, and weeding also requires 3-4 rounds. Compared to other field crops, cotton can be considered labour-intensive in this regard.

(3) Limited sales channels and conditions: “Limited marketing opportunities”

While having predetermined sales channels and easy cash conversion are advantages of cotton, the available sales channels are restricted, and sales prices are also almost fixed by the indicative price. Therefore, farmers have limited options to improve sales value or devise marketing strategies independently.

(4) Lack of alternative use if failing to sell: “Non-edible”

Unlike food crops, where farmers can consume unsold produce if dissatisfied with the sales price, cotton cannot be eaten, and its utility at the household level is limited.

4.4.3 Comparison with other cash crops

Information on local cash crops was collected from refugees and HC near the Bidibidi Refugee Settlement, where the pilot farm was established. Table 26 summarises this information.

Table 26: Comparison of cash crops in Bidibidi Refugee Settlement in Yumbe District

Items	Weeding	Spray	Yield (kg/acre)	Sales price (UGX/kg)	Income (UGX/ acre)	Seed cost (UGX/acre)	Sales channel	Remarks
Cotton	3-4 times	4-6 times	400	1,800	720,000	6,000	Specific buyer	Need a connection with UGCEA or ginneries
Sesame	Nil	Nil	150	3,500	525,000	24,000	Local market	Common cash crop for HCs, but low yield
Groundnuts	1 time	Nil	400	2,100	840,000	40,000	Local market	Need suitable soil. Labour-intensive harvesting
Cassava	1 time	Nil	300	900	270,000	N/A	Local market	Low sales price.
Sunflower	1 time	Nil	400	1,300	520,000	58,000	Contractor	Contract cultivation. Seed is expensive.
Soybean	1 time	Nil	500	1,300	650,000	6,000	Contractor/ Local market	Easy marketing. Animal risk.
Rice	2 times	Nil	800	1,500	1,200,000	100,000	Local buyer	The left figures are for rough rice.
Maize	2 times	Nil	400	800	320,000	100,000	Local market	Mainly for home consumption.
Sorghum	2 times	Nil	400	800	320,000	N/A	Local market	Mainly for home consumption.

Source: Created based on interviews conducted by the Survey team.

HC farmers commonly cultivate sesame for both home consumption and cash purposes. However, it is not a particularly profitable cash crop due to significant losses during threshing and low yields. Careful management is needed for post-harvest processing as well. Moreover, sesame is not popular among refugees due to their food culture.

On the other hand, groundnuts are an essential ingredient in the diet of refugees who are targeted under this survey mainly South Sudanese, and their selling price is also high in the local market. However, soil conditions must be considered for cultivation. Additionally, since it requires labour-intensive harvesting, cultivation tends to be on a small scale. Since the majority is consumed at the household level, it is difficult to rely on it as a stable source of cash.

Similarly, although maize and sorghum are the most widely cultivated crops, their primary purpose is home consumption, making it difficult to position them as cash crops. Cassava is easy to cultivate and highly resilient to adverse weather conditions, making it a reliable emergency crop. However, due to its low selling price, it is also not a certain source of cash income.

Sunflower, despite being prone to bird damage, is easy to cultivate and is a promising cash crop. However, its sales channel is limited to Mukwano Industries (U) Ltd., and there is a risk of missing out on cashing in if farmers miss the timing to sell. Moreover, sunflower seeds are significantly more expensive compared to other crops, and when development partners stopped procuring seeds for farmers, they discontinued cultivation simultaneously. Soybeans are also cultivated for sale to the same company,

but since there are no specific varieties designated, farmers can obtain seeds inexpensively and sell them in the local market even if they fail to sell to the company. However, there is a risk of damage by animals.

Although rice cultivation was uncommon in the area, Caritas introduced it on 500 acres through their block-farming project, significantly contributing to farmers' income. The yield and selling price were good, but since there were no local rice mills, farmers had to have buyers come to purchase unmilled rice. Since the termination of seed distribution in 2023, farmers have stopped cultivating rice and switched to sorghum cultivation.

According to interviews with HCs, cotton was a common cash crop in the area until a few years ago, and several farmers with experience in cotton cultivation were identified. However, at some point, a coordinator from UGCEA responsible for seed distribution and purchasing stopped coming, which led to farmers ceasing cultivation.

Considering the above facts, cotton can be regarded as advantageous as a cash crop compared to other crops. However, a relationship with reliable seed suppliers and buyers such as UGCEA coordinators or ginneries is essential.

4.5 Status and challenges of cotton production in the West Nile and Acholi Sub-regions

The Survey team conducted interviews with 103 cotton farmers in the West Nile and Acholi Sub-regions to understand the status and challenges of cotton cultivation and farming systems.

4.5.1 Status and practices of cotton production

Since Uganda is free from frost, temperature is not a limiting factor for cotton cultivation. Thus, cotton can be sown from around March when rainfall becomes stable in the West Nile and Acholi Sub-regions. However, actual sowing takes place after April, due to the timing of seed distribution from the CDO and the planting of food crops. Some farmers sow cotton around July when finishing food production in the first rainy season and when the second rainy season begins. Delaying sowing until August results in decreased yields. Cotton is cultivated without fertilisers in the area. Cotton is part of crop rotation with food crops such as cassava, maize, sorghum, and sesame, but the specific cropping patterns are not fixed. After sowing seeds, it requires some crop management tasks such as thinning, weeding, spraying, and topping. Harvesting usually begins around 120 days after sowing and lasts for about two months (Figure 23).

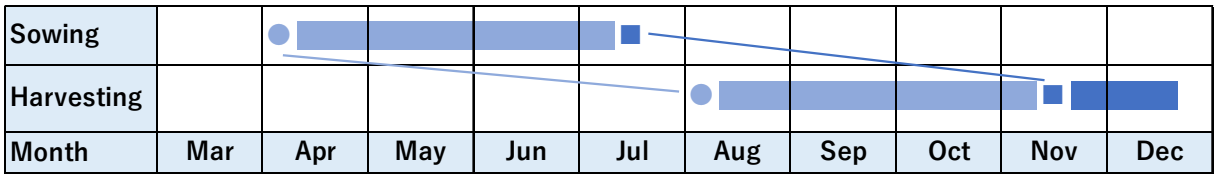


Figure 23: Cotton cultivation calendar in West Nile and Acholi Sub-regions

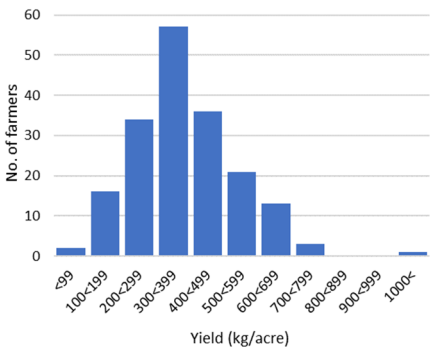


Figure 24: The distribution of cotton yields per acre in the seasons of 2022/2023 and 2023/2024 (N=183)

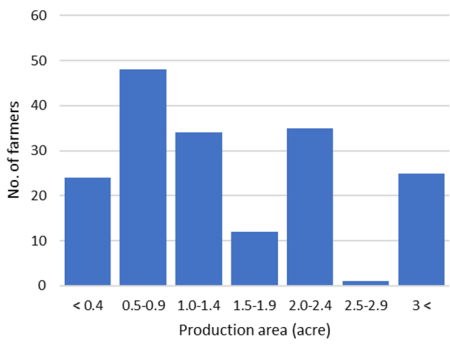


Figure 25: The average cotton cultivation area per farmer in the seasons of 2022/2023 and 2023/2024(N=179)

The average cotton yield per acre for the 2022/23 season among the cotton farmers interviewed was 393.12 kg (N=82), and for the 2023/24 season, it was 351.63 kg (N=101). Figure 24 shows the distribution of cotton yields per acre for these two seasons. According to this data, approximately 30% of farmers fall within the range of 300-400 kg/acre of cotton yield, while 70% of farmers fall within the range of 200-500 kg/acre. When the Survey team interviewed and reconfirmed with data obtained, this trend of yield per acre was supported by farmers, Area Coordinators from UGCEA, and GADC field officers based on their empirical experience.

The average cultivated area per farmer interviewed in both regions was 1.61 acres, but actual cultivation was divided into the range of 0.5 to 1 acre and 2 acres (Figure 25). For areas between 0.5 and 1 acres, although asking support from neighbours might be necessary for some field preparation and crop management tasks like ploughing and weeding, other farming activities such as sowing, pesticide spraying, and harvesting can generally be managed by family members. On the other hand, as the cultivated area exceeds 2.0 acres, a farmer requires labour for various crop management tasks, and beyond 2.5 acres, it becomes necessary to hire labour for most field and crop management duties due to the inability to handle them solely with family members. As a result, there were clear differences in farming models based on the scale of cultivation. Table 27 compares the production costs and financial models of cotton production between a 1-acre scale, where most management tasks can be handled by family members, and a 3-acre scale, where labour needs to be employed for most operations.

Table 27: The production costs and financial models of cotton production (comparing 1-acre and 3-acre scales)

	Items	Unit cost per 1 acre	Quantity	Costs for 1 acre	1-acre scale	3-acres scale
Production costs	Field preparation	UGX 120,000	2 times	UGX 240,000	UGX 240,000	UGX 720,000
	Seed	UGX 30,000	2 bags	UGX 6,000	UGX 6,000	UGX 18,000
	Sowing	UGX 60,000	1 time	UGX 60,000	UGX Nil	UGX 180,000
	Thinning	UGX 20,000	1 time	UGX 20,000	UGX Nil	UGX 60,000
	Weeding	UGX 120,000	3 times	UGX 360,000	UGX *240,000	UGX 1,080,000
	Pesticides	UGX 3,500	8 bottles	UGX 28,000	UGX 28,000	UGX 84,000
	Spraying	UGX 5,000	4 times	UGX 20,000	UGX Nil	UGX 60,000
	Harvesting	UGX 5,000	3 times	UGX 15,000	UGX Nil	UGX 45,000
	Total costs			**UGX 749,000**	**UGX 514,000**	**UGX 2,247,000**
Assumption: Sales price @ 2,000 UGX/kg	**Case 1: Yield 300 kg/acre**			**Sales amount**	UGX 600,000	UGX 1,800,000
				Profits	**UGX 86,000**	**UGX -447,000**
	Case 2: Yield 400 kg/acre			**Sales amount**	UGX 800,000	UGX 2,400,000
				Profits	**UGX 286,000**	**UGX 153,000**

	Case 3: Yield 500 kg/acre	**Sales amount**	UGX	1,000,000	UGX	3,000,000
		Profits	**UGX**	**486,000**	**UGX**	**753,000**

*For a 1-acre scale cultivation, the initial weeding is typically handled by family members, with subsequent rounds often requiring hired labour.

According to Table 27, for family operations of 1 acre, the break-even point is UGX 514,000 per acre. Assuming a cotton price of UGX 2,000/kg, obtaining yields of approximately 250 kg per acre would result in a viable financial outcome. However, for cultivation on a 3-acre scale, the break-even point rises to UGX 749,000, and yields of over 375 kg per acre are necessary to obtain profits. Considering that the average yield of cotton farmers in the region is estimated to be between 350-400 kg per acre, it is evident that although profits are being made, cotton cultivation cannot be considered an efficient income-generating activity.

Cotton is bought from farmers based on the indicative price set by CDO, and there are no price differences based on quality or sales channels (see Section 5.1.1 for details). Given the current conditions where cost reduction through mechanisation for large-scale cultivation is challenging in Uganda, efforts to improve yields are essential for individual farmers to increase their income from cotton cultivation.

4.5.2 Conditions of cotton production

UGCEA is responsible for disseminating cotton cultivation techniques in Uganda (as reported in 4.1). It disseminates cotton cultivation techniques to Lead Farmers through UGCEA's Area and Site Coordinators and then to individual farmers from the Lead Farmers. However, it appears that recommended techniques are not always properly practised at the farmers' level. Furthermore, the cultivation techniques recommended by UGCEA differ from those developed by NARO. Table 28 compares the recommended techniques of NARO and UGCEA with farmers' practices.

Table 28: Comparison of NARO and UGCEA recommended techniques with farmers' practices

	NARO recommendation	UGCEA recommendation	Farmers' practices
Field preparation	Ploughing twice before sowing		
Sowing	Earlier sowing is preferable after April. Drop 3-5 seeds per hole.		
Plant population	Spacing at 75 cm × 30 cm, or 90 cm × 45 cm if soil is fertile. Thin to two plants per hole two weeks after sowing. Around 30,000 - 35,500 plants/acre	Spacing at 75 cm × 30 cm or 90 cm × 45 cm if soil is fertile. Thin to single plants per hole two weeks after sowing. Around 10,000 - 17,000 plants/acre	Spacing at 90 cm × 45 cm or wider Thin to single plants per hole two weeks after sowing. 10,000 plants/acre or less
Fertiliser	Phosphate and NPK compound fertiliser of 100 kg/acre	Organic fertiliser "Fertiplus" of 100 kg/acre	No application
Weeding	The first weeding is practiced at two weeks after sowing. The subsequent timings are determined by monitoring, typically almost every month for a total of 3-4 times.		
Insect control	Scouting and spraying insecticide	Recommend spraying every two weeks, totalling at least 4 times in a season	When getting pesticides, they are sprayed 2-4 times in a season.
Post-harvest	No mention	Sun-dried for 2 days after harvest, then stored indoors.	

According to farmers and UGCEA's Area Coordinators, sowing seeds as early as possible after April is desirable, as delayed sowing results in reduced yields. Thus, farmers often cite delays in seed distribution by CDO as one of the factors contributing to reduced yields. They explain that if sowing is delayed, cotton faces "unfavourable rainfall patterns" or "if the harvesting period falls in the dry season, the moisture content of seed cotton decreases," consequently reducing yield. However, these explanations are neither logical nor scientific. Rain patterns vary every year, and the change in seed cotton moisture is too minimal to significantly affect total yield. At the prison farm in Orum Sub-county,

Kitgum District, cotton is cultivated annually on 700 acres, with seeding carried out every two weeks from April to August. The farm manager at the prison also explained that "rainfall patterns vary slightly every year, so it is not possible to determine which month is best for seeding".

Planting density is a crucial factor directly influencing yield. However, the planting density recommended by UGCEA is approximately 30-50% of NARO's recommendation, and even lower in farmers' fields. While the optimal planting density varies depending on the variety and cultivation conditions, it is currently too low. Considering that recommended standards in other countries are around 30,000 plants/acre or at least 20,000 plants/acre[42][43], the low planting density in the Survey target areas is certainly a reason for small yields. This issue can be addressed immediately by simply doubling the number of plants per hole, from one to two.

NARO and UGCEA recommend fertiliser application, but it has not yet become a common practice in Uganda. Therefore, it is understandable that farmers are not using fertiliser for cotton production despite the recommendation. However, because fertiliser application is an effective technique to improve the productivity of cotton, both NARO and UGCEA are expected to promote it based on both scientific and economical evidence.

Weed growth within the field increases the risk of pests and diseases, as well as competition for light and nutrients, consequently reducing cotton yields. Therefore, weed control is an important aspect of cotton cultivation management. Farmers understand the importance of weed control and typically carry it out at least twice. Weed control is one of the clear indicators of how carefully a farmer manages their cotton crop. There is a clear difference between fields managed by farmers who understand the importance of weed control and work diligently, and those where farmers simply hire labour to carry out weeding as a necessary task.

Due to the high risk of insect damage, insect pest control is crucial in cotton cultivation. While chemical control is common, many farmers rely on insecticides distributed by CDO rather than procuring them themselves. A significant number of farmers cited "CDO not making timely provision of insecticides" as one of the reasons for low yields during interviews. On the other hand, there were cases where guidance provided by UGCEA's Area Coordinators on insecticide dilution ratio[44] and pre-harvest intervals[45] was insufficient. Overall, it was implied that farmers were not able to use insecticides effectively and control insect pests efficiently. Fungicides are only applied to cotton seeds and are not used during the cultivation period. However, diseases such as boll-rot due to abundant rainfall were frequently observed in the field. Given that cotton is cultivated during the rainy season in Uganda, fungicide application during cultivation could be adopted as a technique for improving yields.

Post-harvest processing for cotton is not technically difficult, but it requires careful handling. There may be instances where severe discolouration or hard-locked impurities with insufficiently elongated lint, which are not suitable for shipping, are pointed out during purchase (see Section 5.2.1 for details).

[42] Cotton Production guideline, 2016, Agriculture, Forestry and Fisheries, Republic of South Africa
[43] The 2023 Georgia Cotton Production Guide, The University of Georgia College of Agricultural and Environmental Sciences Cooperative Extension
[44] Some area coordinators instructed farmers to use one bottle (100 ml) per 20 L tank instead of the proper ratio, which is 20 ml of pesticide per 20 L tank.
[45] Some area coordinators held the opinion that "since cotton is not a food product, there is no need to consider pre-harvest intervals." Additionally, there were some coordinators who did not understand the concept of "pre-harvest intervals" at all.

Cotton field under rough management

Cotton field managed well

Spacing is uneven, and plant density is low

4.5.3 Challenges in cotton production

The challenges in cotton production identified in the West Nile and Acholi Sub-regions through this Survey are summarised as follows:

(1) Coordination with NARO

As highlighted in "4.2.3 Challenges in the cotton research program in Uganda," numerous challenges exist within the research field. Additionally, as noted in "4.5.2 Conditions of cotton production," one of the challenges is the ineffective dissemination of NARO's cultivation guidance to farmers. Therefore, collaboration among the CDO, UGCEA, and NARO is vital for promoting cotton cultivation in Uganda.

(2) Capacity development of UGCEA coordinators

Given the significant influence of UGCEA coordinators' capacity on farmers' productivity, enhancing their skills is imperative. Strengthening collaboration with NARO should accelerate the capacity development of UGCEA coordinators.

(3) Over-reliance of farmers on CDO

Many farmers mentioned “delay in pesticide distribution by CDO” as a reason for reduced yields, yet they rarely bought pesticides themselves. The main reason for this hesitation was the perceived high cost of commercial pesticides, despite the price difference between CDO-supplied pesticides being only approximately UGX 12,000 to 20,000 per acre per season. While it is imperative for farmers to minimise inputting cash on cultivation, the potential impact of decreased yields should also be considered. Since CDO support has its limitations, it is crucial for farmers to enhance their farming strategies so as to improve their income from cotton cultivation. Of course, changing the entrenched reliance on CDO support among farmers is not easy. However, promising cases were observed as some farmers whom the Survey interviewed recognised the importance of timely pesticide application and ensured they purchase pesticides before the season begins. Encouraging more farmers to adopt such practices is essential.

(4) Lack of farming plans

While many farmers could recall their cotton sales quantity and each cost, they did not remember the total expenses. Cotton cultivation can accommodate both intensive and extensive farming approaches, where the concept of “cultivating on a small scale, intensively, and ensuring a steady income” (see Section 4.6.3 for details) exists alongside the idea of “achieving moderate yield with moderate effort”. It is crucial to guide farmers in developing plans tailored to their specific circumstances, considering factors such as affordable efforts and costs, cultivated area, and expected income. Moreover, when developing concrete farming plans including anticipated income and expenses, farmers are expected to be better equipped to plan their purchases of commercial pesticides.

4.6 Status and challenges of organic cotton production in the West Nile and Acholi Sub-regions

4.6.1 Current status of organic cotton production in the West Nile and Acholi Sub-regions

The Survey team conducted interviews with GADC staff (Senior Area Coordinator, Area Coordinators, Field Officers) and 25 organic cotton farmers contracted with GADC, as GADC is the only company handling organic cotton in the West Nile and Acholi Sub-regions.

In Northern Uganda, the Export Promotion of Organic Products from Africa (EPOPA) implemented the Lango Organic Cotton Project (LOCP) from 1994, primarily focused on promoting the organic cultivation of cotton, sesame, and chili peppers. Even after EPOPA's support ended in 1998, LOCP continued until 2011 with assistance from the Dutch government and several NGOs[46]. GADC became involved in organic cotton production when it became a partner in 2009. Currently, with support from NGOs such as GOAL Global and the Swiss ecology organisation Fair for Life, GADC is promoting and exporting organic cotton and sesame in the West Nile and Acholi Sub-regions. In the 2023/24 season, they have approximately 14,000 contracted farmers for organic cotton production in the West Nile and Acholi Sub-regions combined, with an annual trade volume of around 5,000 tonnes of lint cotton. GADC intends to continue promoting the organic cotton business regardless of support from development partners.

When the Survey team asked organic farmers their reasons for engaging in organic cultivation rather than conventional farming, the most common answer was that “it saves the cost of pesticides”. They stated that saving approximately UGX 20,000 to 30,000 in pesticide costs is more beneficial than spending time making natural pesticides. The next most common answers were that “synthetic chemical pesticides are harmful to health” and “they also spoil the soil.” While these opinions lack scientific evidence, they are often used as slogans when promoting organic farming, and farmers seem to believe them as they were taught. On the other hand, farmers rarely mention the premium “bonus” they can gain as an additional payment on top of the sales price. When the team asked, they responded, “it is also one of the advantages, to some extent”.

4.6.2 GADC's organic cotton cultivation standards

The cultivation standards for organic cotton production by GADC were established under the guidance of LOCP in 2009. While the basic cultivation standards such as planting period and planting density are same to those of the UGCEA, there are two distinctive features compared to conventional farming; one is “not burning the field when clearing it for cultivation” and the other is “using natural pesticides instead of synthetic chemical pesticides”.

According to the guidance, by not burning the fields, organic matter is returned to the soil as humus, and it is expected that the organic matter and nitrogen content in the soil will improve. Table 29 compares soil test results sampled from cotton fields under organic and conventional cultivation by the Survey team. As a result, conventional farming fields tended to have higher pH and exchangeable cations. This seems to be because of burning. On the other hand, while the available phosphorus tended to be slightly higher in organic farming fields, there was no clear trend in organic matter or total nitrogen content.

[46] Kate Bird, K., 2009. Aid for Trade in the agriculture sector: A comparative case study of three cotton sector projects -, Overseas Development Institute. United Kingdom. Retrieved from https://policycommons.net/artifacts/4411708/aid-for-trade-in-the-agriculture-sector/5208282/

Table 29: Comparison of soil test results sampled from cotton fields under organic and conventional cultivation*

Type of samples	No. of samples	Soil pH	Organic matter	Total nitrogen ***	Available P ***	Exchangeable cations		
						Ca	Mg	K
Organic cultivation	5	5.97 (0.40) **	1.48% (0.86)	0.04% (0.02)	1.64ppm (1.32)	1692ppm (216.2)	263ppm (269.3)	89ppm (47.0)
Conventional cultivation	6	6.69 (0.22)	1.84% (0.63)	0.03% (0.02)	1.12ppm (1.37)	2152ppm (238.2)	184ppm (69.9)	179ppm (66.7)
All	11	6.3 (0.5)	1.65% (0.75)	0.03% (0.02)	1.38 ppm (1.30)	1901ppm (322.0)	227ppm (199)	130ppm (71)

*The test was conducted at the Soils, Agro-meteorology and Environment Unit, National Agricultural Research Laboratories (NaRL), Kawanda. **Values in parentheses represent standard deviations. ***Although the analysis values for nitrogen and phosphorus were only 10% of expected levels, Dr. Kayuki Kaizzi from NaRL, responsible for the analysis, assured the accuracy of these values.

GADC instructs farmers in various pest control techniques, such as natural pesticides, intercropping, wood ash, and molasses traps[47]. These techniques were well practiced by farmers, although only the molasses trap was not adopted due to difficulty in obtaining materials. Natural pesticide was prepared both at the group and individual levels, involving finely chopping and kneading three or more types of locally available herbs, then fermenting them in water for two weeks. When used, the solution is diluted with three parts water before application. However, there was some variability among farmers regarding the types of herbs used and the ratio of water to herbs. This suggests that the extracted active ingredients and their concentration may vary, raising doubts about the stability of pest control effectiveness of natural pesticides prepared by farmers.

4.6.3 Comparison of conventional and organic cotton production

The average cotton yield per acre for organic cotton farmers interviewed was 454.48 kg (N=21) and 354.39 kg (N=25) in the 2022/23 and 2023/24 seasons respectively. This is slightly higher or comparable to the average cotton yield of conventional farmers for the same years, which was 372.00 kg and 351.05 kg (Table 30). Additionally, the average cultivation area per household was 1.34 acres for organic cultivation, which was smaller than the 1.70 acres of conventional cultivation.

Usually, organic farming tends to yield lower per-unit-area compared to conventional methods. However, in cotton cultivation in the region, this trend was not observed. There were cases where organic cultivation yielded higher than conventional methods. This is considered to be mainly due to the following three factors.

Table 30: Average cultivation area per household and yield per unit area for cotton farmer (Results or interview from September 2023 to February 2024; N＝103)

	2022/23 season			2023/24 season			Total		
	N	Acres/farmer (SD)*	Yield /acre (SD)	N	Acres/farmer (SD)	Yield/acre (SD)	N	Acres/farmer (SD)	Yield/acre (SD)
Organic cultivation	21	1.29 acres (0.80)	454.48 kg (211.70)	25	1.39 acres (0.83)	354.39 kg (153.59)	46	1.34 acres (0.81)	400.08 kg (187.19)
Conventional cultivation	64	1.79 acres (1.76)	372.00 kg 144.69	78	1.63 acres (1.71)	351.05 kg (114.84)	142	1.70 acres (1.73)	360.38 kg (128.91)
Total	85	1.66 acres (1.59)	393.12 kg (166.99)	103	1.57 acres (1.54)	351.88 kg (124.72)	188	1.61 acres (1.56)	370.36 kg (146.22)

*Standard Deviation

[47] Accessed document. Created by GADC: “Organic Cotton Cultivation”

(1) Both conventional and organic cultivation are practiced without fertiliser application.

Fertiliser application is a crucial technique in plant production, improving productivity. Chemical fertilisers efficiently supplement soil nutrients in a balanced and relatively inexpensive manner. However, their use is restricted in organic farming, typically resulting in lower yields compared to conventional methods. Nevertheless, in Uganda, fertiliser application itself remains uncommon among farmers. Consequently, both conventional and organic cotton cultivation in the country rarely involve fertiliser application. Thus, there is currently no difference in yields between the two cultivation methods in this regard.

(2) Both conventional and organic cultivation face difficulties in controlling insect pest damage.

In the target areas under this Survey, cotton farmers apply pesticides approximately four times on average, but the timing and dilution ratios of these applications are often inappropriate (see Section 4.5.2 for details). The Survey found a possibility that pests are not effectively controlled despite the effort in pesticide application. On the other hand, the active ingredients of natural pesticides used in organic cultivation may vary among farmers, raising concerns about obtaining consistent efficacy across all farmers. Considering these circumstances, it is likely that both conventional and organic cultivation methods are ineffective in pest control, and thus, there may not be a difference in yields regarding pest control.

(3) Organic cotton farmers practice field and crop management more carefully and intensively.

In the Survey, organic cotton farmers were observed managing their fields well under the management system of GADC. Many organic farmers cultivated cotton in relatively smaller fields (as shown in Table 30). They explained “Even if I expand the cultivation area, I cannot manage it” and “Cotton is a labour-intensive crop”. These comments explain how they carefully manage their fields. A difference in field management was mainly observed in weed control. Organic cultivation farmers meticulously weed their fields, suppressing the occurrence of pests and diseases while reducing competition for photosynthesis and nutrients with weeds. This meticulous cultivation management seems to contribute to the difference in cotton yields.

In the current situation where even conventional cultivation does not utilise chemical fertilisers and pesticides, there appears to be a tendency for carefully cultivated organic cultivation to yield higher, suggesting “cultivating on a small scale, intensively, and ensuring a steady income” can also be a practical approach for cotton cultivation like other crops. Especially for small-scale farmers with limited financial investment, it is crucial to understand this point and diligently implement each field and crop management practice.

Case 4

Ojuya John, aged 80, showed one of this Survey's most stunning organic cotton fields. Despite him saying that “the spacing between plants was somewhat wide,” he achieved a yield of 553 kg/acre, above average for the 2023/24 season. Due to his advanced age, he could not produce natural pesticides but diligently managed weed control in his field. As the Survey progressed, the team hypothesised that neither synthetic nor natural insecticides would be significantly effective under current conditions. His case served as one example supporting this hypothesis.

Organic cotton field that was never sprayed with any pesticides

(4) Organic cotton cultivation challenges

In the West Nile and Acholi Sub-regions, organic cultivation has been confirmed to achieve yields equal to or greater than conventional cultivation. However, organic cultivation also faces the following challenges.

1) Low yields

While organic cultivation can achieve yields equal to or greater than conventional methods, the yield itself is not always high and stable. Enhancing farmers' income necessitates improving yields. Therefore, reassessing planting densities and developing varieties resistant to pests and diseases, as practiced in conventional cultivation, is essential.

2) Practice without scientific evidence

Some organic cultivation farmers stated in interviews that "chemical fertilisers spoil the soil" or "the use of synthetic pesticides harms health". These negative perceptions may come from outdated beliefs dating back to before 1980 when laws regulating substandard products and usage standards were ambiguous, but these no longer apply in modern times. While adverse effects may still occur if misused or abused, such negative effects are unlikely when used correctly, rendering the above beliefs misleading. On the other hand, some farmers believed that "natural pesticides only affect pests and do not harm beneficial insects" and "natural pesticides are harmless to humans." However, these are also incorrect beliefs. For example, it is reported that Azadirachtin, the active ingredient in neem, a natural herb used locally for natural pesticides, is also harmful to beneficial insects. Similarly, Capsaicin, the active ingredient in chilli peppers, another natural pesticide material, has toxicity levels equal to or higher than the popular synthetic pesticide "Dimethoate"[48]. Whether synthetic or natural, pesticides affect organisms, emphasising the importance of technicians having proper handling and appropriate knowledge[49].

On the other hand, both farmers and GADC coordinators believed that "natural pesticides only affect pests and do not harm beneficial insects" and "natural pesticides are harmless to humans." However, these are also incorrect beliefs. For example, it is reported that Azadirachtin, the active ingredient in neem, a natural herb used locally for natural pesticides, is also harmful to beneficial insects[50]. Similarly, Capsaicin, the active ingredient in chilli peppers, another natural pesticide material, has toxicity levels equal to or higher than the popular synthetic pesticide "Dimethoate. " Whether synthetic or natural, pesticides affect organisms, emphasising the importance of technicians having proper handling and appropriate knowledge

3) Need for verification of the effectiveness of applied technologies

Both GADC technicians and organic farmers expressed confidence in the effectiveness of their organic farming techniques based on their experience. While these experiences in the field are undoubtedly valuable, it is also essential to verify effectiveness scientifically through experiments when disseminating techniques to farmers.

4) Development and verification of organic cultivation techniques at NARO

In general, it is not easy for private companies to allocate resources (human, material, financial) to basic technology development and verification. Therefore, to address the challenges mentioned earlier (1 to

[48] The LD50 (oral, mouse) of Capsaicin is 47.2 mg/kg, while that of Dimethoate is 150 mg/kg. Reference: "Capsaicin Material Safety Data Sheet". sciencelab.com. 2007. Archived from the original (PDF) on 29 September 2007. / Dimethoate Biomonitoring Summary". U.S. Centers for Disease Control and Prevention. 2021-09-09.

[49] If considering the reduction of environmental impact or improving farmers' working conditions, it would be more rational to explore appropriate technologies without being restricted by specific policies. On the other hand, engaging in organic cultivation appears to be commercially rational to meet the demands of the organic market.

[50] Mehmet Sadık Cura and Nimet Sema Gençer, Side Effects of Azadirachtin On Some Important Beneficial Insects in Laboratory, https://uludag.edu.tr/dosyalar/jbes/37/mak05.pdf

3), it is expected that public institutions such as NARO will also engage in the development and verification of organic cultivation techniques.

5. Current Status and Challenges of Uganda's Cotton Export and Processing

The supply chain of Ugandan cotton from producers to final consumers can be roughly outlined as follows:

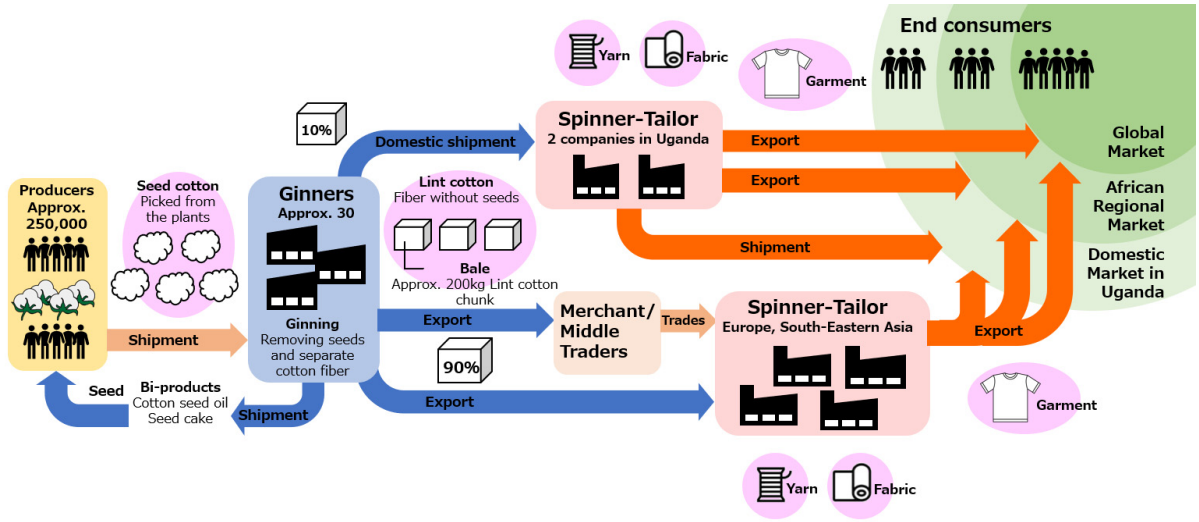


Figure 26: Outline of cotton supply chain from Uganda

More than 90% of the cotton produced in Uganda is exported as raw material (lint cotton)[51] to the global market, while the remaining 10% is sent to spinning, weaving, and garment manufacturing domestically. The final products, mainly clothing, are then distributed within the country, to the regional market within the African continent, and exported to other regions such as Europe to some extent. In this section, the current status and challenges of each part of this supply chain shall be described and analysed.

5.1 Current status and challenges of the supply chain from cotton producers to primary processing

5.1.1 Supply chain of conventional cotton

Conventional cotton is produced by individual producers and purchased by either 1) agents contracted by ginneries or 2) intermediate traders, customary called “middlemen,” who do not have specific contracts with certain ginners. They purchase seed cotton from producers by cash and deliver it to ginneries.

“Agents” receive cash in advance from ginneries to facilitate the purchase of cotton from producers and work exclusively with certain ginneries most of the time. On the other hand, “middlemen” use their own funds to source cotton and negotiate transactions with various ginneries, trying to obtain the most favourable conditions at the time.

[51] https://www.monitor.co.ug/uganda/business/markets/90-of-uganda-s-cotton-is-exported-says-uma--4379358

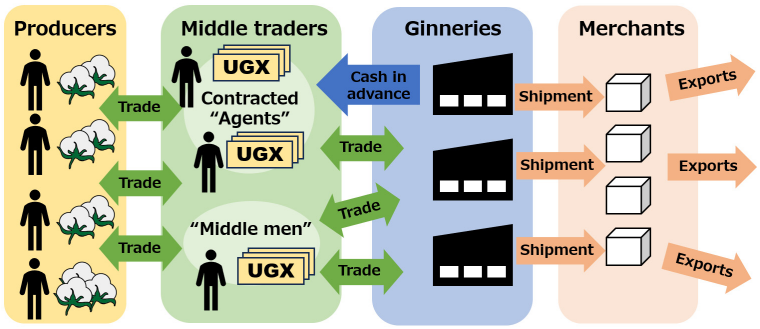


Figure 27: Supply chain of conventional cotton

Through this trading system, producers have the freedom to sell to any ginnery offering the most favourable conditions among several available options. Practically, though, individual producers lack means to approach buyers or arrange transportation themselves to deliver the produce. As a result, they tend to sell to agents or middlemen randomly, whenever they are approached, to avoid missing the opportunity. Consequently, as a result, some unscrupulous middlemen exploit producers to maximise their profits by offering lower prices than the indicative price determined by CDO.

Moreover, due to the random procurement process without technical interventions or specific quality requirements for producers, controlling quality becomes harder. However, many ginneries dealing with conventional cotton sell to cotton merchants at prices linked to international market trends, where quality has minimal influence in price negotiations. As conventional cotton is sold as a highly anonymous commodity, one of the ginneries interviewed during the Survey stated that they do not even know the final destination country of the cotton they ship, or what products the cotton is going to be used for.

5.1.2 Supply chain of organic cotton

In the case of organic cotton, the type of certification acquired and the practices of ginners may vary. In the example of certification under GOTS, farmers sign the contracts with ginneries during the cotton growing period and are registered as contract farmers. Based on this registration information, they randomly receive inspections by third-party certification bodies during the period. Additionally, they received technical assistance through the ginner's support system, receiving guidance and materials within the group in the structure. After harvesting, cotton is sold through the ginnery's staff, and payment is made based on a contract. After the certification process is completed, the organic "premium"[52] is added by the ginner.

The "premium" is typically around 5 to 10% of the market price, but it is not fixed by any clear rule. The premium is not paid when the cotton is purchased from the grower, but it can be paid around August of the following season, when the ginnery finishes selling the raw cotton. In addition to the premium for the purchase price, other "premiums" may also be received from the relevant organisations, such as support for the producer community as a whole, or social funds used to improve the working conditions of the ginnery's employees.

[52] In the 2022-2023 season, approximately 10%, UGX 200, was added to the indicative buying price set by CDO, UGX 2,000 per kg, and the organic farmers received UGX 2,200 per kg at the end of the season.

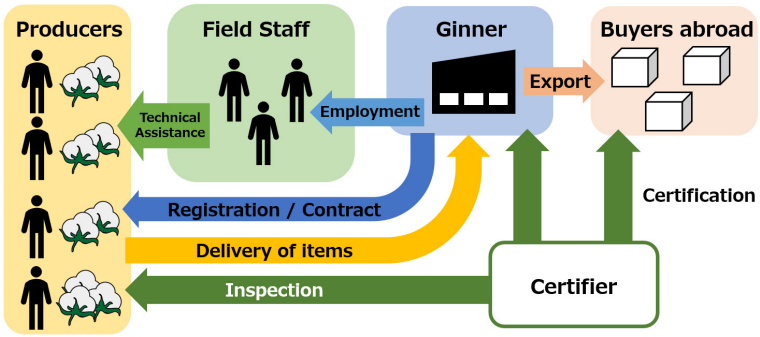


Figure 28: Supply chain of organic cotton (the case of GADC with GOTS)

This purchasing style can ensure traceability, which is essential for certification. Furthermore, ginneries support producers technically and distribute materials, which contribute to quality control. Consequently, ginneries can appeal to specific customers who value organic certification and better quality, enabling them to sell cotton at higher prices in a secured market, compared to the situation of conventional cotton.

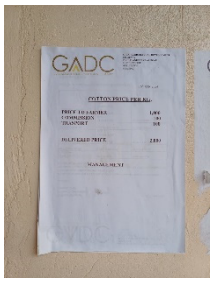
Even producers are benefited by the access to technical guidance and the assurance of selling at the official price plus the premium. However, according to GADC, there have been cases observed where producers, despite the contracts and receiving technical support during the cotton growing period, have sold their produce to random middlemen or agents dispatched by other companies.

During inspections and monitoring by certification bodies and technical support systems, if violations of organic regulations, such as the use of synthetic pesticides, are detected, the contracts with the producers are terminated, and the ginnery will not purchase from the terminated producers.

In the case of GADC, to ensure both organic certification and traceability, and to make collecting cotton from contracted farmers easier and secured, they have established "Stores" or "Buying Points" in various locations.

Weighing cotton brought by a producer at a GADC Buying Point

The indicative price is clearly put up at a Buying Point



The price table at the GADC's ginnery in Gulu, indicating the commission of a Buying Agent

The number of Buying Points is approximately 150 for larger-scale facilities and around 450 for smaller ones, depending on the densities of producers in the area. These Buying Points form a network extending from the Acholi Sub-region to the West Nile Sub-region. The Buying Agents, who manage these Buying points, often hold roles assigned within the hierarchy of dissemination, such as Lead Farmers, Field Officers, and Area Coordinators. Some Buying Agents receive cash from GADC in advance so they can instantly pay the producers when they bring cotton to their Buying Point. Therefore, the appointed individuals are required to have credibility within the community to fit the role, sometimes by submitting a recommendation letter from the Local Council.

Buying Agents are provided with a list of estimated yields from the registered producers in their area by GADC. They are basically responsible for receiving harvests from listed producers, weighing them, verifying quality (mainly the moisture content), and making cash payments or issuing receipts for cash exchange later. Once a certain amount of cotton has been purchased, they inform GADC's office, load

the harvest onto trucks dispatched by GADC, transport it to the ginnery, and receive payment based on the weighed amount at the ginnery, with an additional commission as a Buying Agent. When cotton is brought to the ginnery, the quality is checked again, and if it is judged to be insufficiently dried or sorted, GADC's staff will re-dry and re-sort the material on the spot. In such cases where additional labour is required, GADC deducts the cost of labour from the payment to the Buying Agent. The difference in the weights between the Buying Point and the ginnery will also be the responsibility of the Buying Agent. Under this system, Buying Agents need to carefully check the quality of the actual cotton when purchasing from cotton farmers, which helps to ensure the quality of organic cotton.

Weighing trucks at the weigh bridge of the ginnery

Moisture-measuring instrument

Drying cotton brought to the ginnery when their moisture content is above the standard

At the ginnery, after receiving seed cotton from a Buying Agent, ginnery workers pick contamination from the seed cotton (picking), then remove the contained seeds and separate the cotton fibre by ginning machine, then press only the fibre (lint cotton) into an approximately 200 kg weight cube called a "bale" using a large pressing machine.

Picking

Ginning

Shipping in "bale" form

5.2. Challenges in the supply chain of Ugandan cotton

The challenges are examined considering the current situation where over 90% of cotton produced in Uganda is exported as raw material, and aligning with the objectives of the Survey, which are:

- Capturing initiatives and considerations required for the development of the cotton industry in Northern Uganda, incorporating smallholder farmers from refugees and HCs.

- Organising information to contribute to JICA's cooperation policy, aimed at implementing measures to strengthen the competitiveness of the cotton industry.

During discussions over agricultural policy, the term "value addition" is frequently mentioned. In the case of cotton, within the wide supply chain from raw material to final product, there is often debate on the necessity of not only exporting raw materials to the international market but also elevating processing stages domestically. This involves carrying out processes such as spinning, weaving, and sewing in addition to raw material production. However, this argument requires careful consideration from two perspectives.

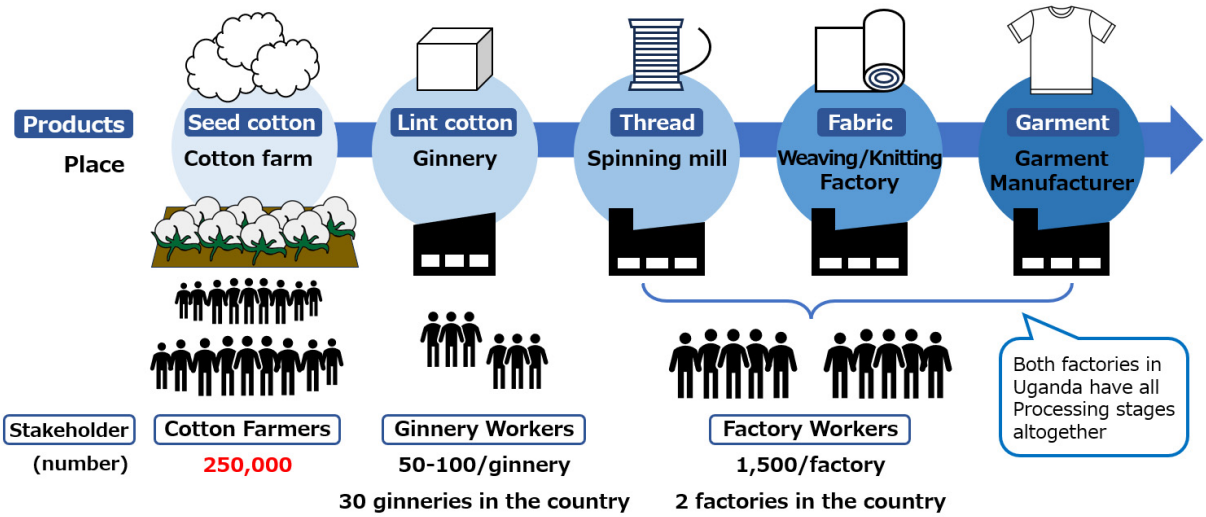


Figure 29: Involved stakeholders' distribution in the cotton supply chain in Uganda

(1) Scale of benefiting stakeholders

As illustrated in the figure above, in Uganda, a cotton-producing country with a developing light industry sector, stakeholders in the cotton industry are much bigger in number in raw material production. When aiming to improve the livelihoods of small-scale farmers through the cotton industry in Uganda, particularly for refugees and HCs, the number of stakeholders who can be benefitted from employment and benefits generated in the later processing stages is still quite limited. Therefore, expanding and improving the raw material production system would have a significantly greater impact.

(2) Quality issues with raw material

As detailed later, there are noted quality issues with Ugandan cotton when applying the international quality standards, resulting in poor evaluation in the market. The quality at the raw material stage continues to affect the following processes and will be reflected in the final product quality. Therefore, it is impossible to produce high-quality processed goods from low-quality raw materials. Efforts to improve the quality of raw materials is essential and should be prioritised over promoting value addition through processing.

In Uganda, cotton has a unique industry structure due to its historical background, maintaining a certain level of influence particularly in the Survey target areas, despite not being large in scale, as mentioned in "3. Surroundings of Cotton Production in Uganda". Furthermore, these characteristics have been confirmed to have synergy with livelihood improvement for refugees, which is the main focus of this Survey.

However, various elements which have been sustaining the advantage of cotton have weakened in recent years, leading to a decline in the overall strength of the production area. This directly led to the fact that Ugandan cotton is not highly evaluated in the international market.

In addressing the individual challenges faced by Ugandan cotton as a commodity and planning strategies to improve this situation, the origins of these challenges among stakeholders along the supply chain are as follows:

- Challenges at the producer level
- Challenges in transportation and at the Buying Points
- Challenges at the ginnery level
- Challenges facing government agencies

5.2.1 Current status and challenges of contamination control

Contamination is one of the most significant challenges in the valuation of Ugandan cotton in the global market, involving all stakeholders in the supply chain and representing issues rooted in the structure of the industry.

Examples of contamination picked at the ginnery by pickers

Examples of contamination picked at a spinning mill abroad which received lint cotton from Uganda

PPP (polypropylene) fibre, an example of contamination which seriously affects the quality of final products

(1) Challenges at the producer level

The majority of contamination occurs in the environment of temporary storage between the farms and the producers' residences. It starts with organic contaminants like particles of cotton plants, other plants, and soil from the farm, and plastic waste such as packaging materials for food are added later on. Additionally, the misuse of polypropylene (PPP) fibre crop bags and fabric scraps used to tie bag openings during transportation contributes to further contamination. Although GADC tackles this problem by providing cotton cloth bags and advocating quality management awareness through technical training, the outcome is still limited. Furthermore, there are instances observed where distributed cloth bags and other materials such as tarpaulins are not utilised for their intended purposes, but rather for the farmers' own use.

A cotton cloth bag provided by GADC

An example of storage conditions in the residential area of a cotton producer

(2) Challenges in transportation and at the Buying Points

Buying Points should be the first locations to filter produces and remove contamination mixed in producers' level. However, not only do these locations fail to function as intended, but contamination often worsens at the Buying Points, as they are usually located in convenient areas of villages where a lot of consumer goods and their packaging are scattered around.

Seed cotton brought to a Buying Point. The torn PPP bag is tied with a cloth string.

Drying seed cotton in front of a Buying Point. There is rubbish scattered around the tarpaulin, which can cause serious contamination.

(3) Challenges at ginnery level

A ginnery, in the case of GADC, removes contamination manually by human labour in two stages: temporary storage warehouses and pre-processing machinery in the factory building. At the time of the Survey, neither stage was efficiently conducted, and the intended effects of the operation were not observed. For example, staff allocation for picking at the temporary storage warehouses was random, allowing significant amounts of cotton to bypass the filtering function. Furthermore, due to the influx of numerous employees, Buying Agents and other related people in the business, a variety of waste was seen scattered throughout the ginnery premises. Although some improvements were somehow observed after the Survey team gave advice, maintaining consistency in daily operations and mobilising numerous unskilled employees continuously remains quite challenging and takes a long time.

Picking at a temporary storage warehouse (before the Survey team's advices)

Picking at a temporary storage warehouse (after the Survey team's advices)

Picking inside the ginnery building, on a belt conveyor

(4) Challenges facing government agencies

While private companies are responsible for quality improvement to a certain extent, the CDO, representing the industry from the governmental side at the national level, also holds responsibility. The CDO lab, located in their office, tests cotton samples gathered from ginneries all over the country and the results are recorded and analysed, but without further action to mobilise ginneries for improvement or setting shipping standards and stopping unqualified samples from being exported. While grading based on quality standards is conducted, efforts for quality improvement basically rely on private companies' own responsibility.

Lint cotton samples sent from ginneries all over Uganda to the CDO lab in Kampala

The testing facility at the CDO lab in Kampala. It can test length, uniformity, and strength of the fibre.

Samples for the grading standard, reserved at the CDO office

The common elements among these stakeholders' current quality management systems is that failures in the earlier stages of the chain persist without thorough inspection and improvement, affecting the following stages. This situation is not solely due to individual stakeholders' lack of awareness or ignorance but should be considered as a structural problem.

For instance, even if a single Buying Point or ginnery implements stricter quality standards and refuses to purchase cotton with lower quality, producers rejected by one company may simply sell to competitors, leading to a decline in the rejecting company's supply without overall quality improvement in the industry.

Despite the collaborative efforts of governmental organisations and private enterprises, the cotton industry still struggles to gain competitiveness in the global market through quality approaches. As observed, the individual improvement initiatives at each stage of the supply chain are simple and easy, but demand a collective effort and shared understanding by all the stakeholders involved.

5.2.2 Current situation and challenges in ginning operation

Ginning, the first processing step of cotton in Uganda, also has challenges to be worked on in order to improve quality and gain competitiveness in the global market. The issues at the ginnery level cannot be addressed by the producers and logistics players, but nor are they entirely dependent on the ginneries. Based on the history and the structure of the industry, government agencies are also responsible to a certain extent.

(1) Challenges faced by ginneries

The facilities at most of the ginneries in Uganda were introduced in the period between the 1920s when the cotton industry was brought into Uganda by the colonial government and the 1960s when cotton production was at its peak, and many of these machines are quite old. This directly affects the quality of ginning.

For instance, in Uganda, all ginneries confirmed during the Survey use the “roller gin” machine, where fibres are sandwiched between two rotating rollers to push out seeds. However, globally, the “saw gin” machine, which uses blade-like parts to separate seeds as fibres pass through, is becoming more common and is being introduced even in West African cotton-producing countries as of late.

While the roller gin can keep fibre length longer by not cutting it into smaller pieces, it results in a higher amount of contamination, especially of cotton plant particles, and inefficiency in the ginning process. Additionally, the buildings of most ginneries are deteriorating with age, including the machinery for compressing lint cotton into bales after ginning. Although only six ginneries in Northern Uganda were visited during the Survey, all of them were observed as being in a similar situation, operating processing lines with old machinery within old buildings, making it difficult to maintain a clean and safe working environment.

On the other hand, securing enough profits to afford overall machinery replacement or rebuilding within the current structure of the cotton market is extremely challenging, and no major equipment updates are planned by any of the ginneries at the time of the Survey.

The building of a ginnery whose base was constructed in the 1920s

An old pressing machine

Old ginning facility which requires constant maintenance

(2) Challenges facing government agencies

In the current industrial structure, the limited supply of raw materials is divided among numerous small-scale ginners (as discussed in Section 3.3.4), resulting in an inefficient situation. Moreover, in the absence of uniformed and shared quality standards, the situation where numerous small-scale ginners compete in purchasing also hinders quality control, as it acts as a barrier for ginners to enforce quality standards among producers while producers can have alternative options for selling their produce, ultimately hindering the improvement of cotton value.

Unlike Uganda, where small-scale ginners have historically been responsible for purchasing cotton from small-scale farmers across the country, Côte d'Ivoire, a producer with nearly five times the production volume of Uganda and ranked among the top cotton-producing countries in Africa (refer to Section 3.2.1), processes its cotton through only six ginners which are partially owned by the government, and each ginner has its exclusive area to operate in. While this style cannot be directly applied to the context of Uganda as the historical backgrounds are very different and so is the nature of the cotton industry, it still serves as an example of optimisation through public-sector intervention.

In contrast, Uganda has a history of small-scale ginners purchasing cotton from small-scale farmers across regions through a network of numerous small ginners. However, as mentioned earlier, many of these ginners have old facilities, with many of them not being able to invest in upgrades or renew their facilities. With a decrease in the number of ginners in the future expected, government agencies are expected to facilitate “selection and concentration” for overall optimisation and provide support to ginners that will continue operations.

5.3 Value addition approach through certification and processing (spinning, weaving and sewing)

(1) Value addition of raw material through certification systems

In Uganda, while GADC has been the only certificated organic cotton producer for many years, there are now more companies confirmed to have obtained organic certification, one of companies is also certified with CmiA.

Table 31: Characteristics of various certification systems

Name	Requirements
Cotton made in Africa(CmiA)	- Targeted at ginneries and processing companies within Africa. - Ginneries must have their own technical assistance system.

Name	Requirements
	- Not strictly required to be pesticide and chemical fertiliser-free, but proper management and understanding of inputs used are required.
Global Organic Textile Standard (GOTS)	- Typically requires proof of "pesticide- and chemical fertiliser-free" practices for the past three years. - Inspection by a third-party auditor is mandatory. - Submission of transaction records like Transaction Certificates (TC) with producers are also required.
USDA Organic / National Organic Program(NOP)	- In addition to the GOTS standards, the seeds must not be treated with chemicals.

(2) Value addition through domestic product processing

1) Spinning, weaving, and sewing

At the time of the Survey in 2024, there are two companies operating in Uganda that process raw cotton material into final products (garments) through spinning, weaving, and sewing.

Table 32: Two companies with fibre processing operations in Uganda

Corporate name	Brand name	Business characteristic
Fine Spinners Uganda Limited	Fine Spinners	- T-shirts, polo shirts, etc. - Almost 100% exported, mainly to Europe and USA. - Obtained Cotton made in Africa certification.
SOUTHERN NYTIL GARMENTS LIMITED	Nytil	- Uniforms for schools, military, police, hospitals, etc. - 65% for the domestic market, 35% for exports. - Mainly exported to other African countries (DRC, Rwanda, South Sudan, etc.). - No certifications obtained.

Nytil specialises in uniforms, holding a presence not only in the domestic market but also exporting to neighbouring African countries. The strength of the company is found in its stable production quantities and low prices, which are positively received in markets of neighbouring countries with similar values.

However, in the markets of developed countries, enterprises and consumers are becoming more conscious about how the textile factories are operated, e.g., whether the labour conditions are humane or whether water used in dyeing processes is properly treated to minimise environmental impact. Considering the current situation of the two processing companies in Uganda, addressing such concerns would require large-scale investments and significant shifts in mindset.

Fine Spinners primarily manufactures T-shirts and polo shirts from fabric for export to the market in Europe. Similar to Nytil, its trading strength is in quantity and price. However, in order to appeal to the market in developed countries like Japan, significant improvements are required in the current production system. During interviews with the management members of the company conducted as part of the Survey, it was stated that there is interest in value addition such as organic certification, though such efforts would only be realised in response to steady demand from customers.

Spinning facility at the factory of Fine Spinners

Weaving and dying facility at the factory of Fine Spinners

Sewing facility at the factory of Fine Spinners

2) Branding

There are a few cases where further value addition is attempted by subjecting final products manufactured by the aforementioned companies to further processing. Examples include “Definition Africa,” which prints on T-shirts featuring designs incorporating Uganda's cultural heritage, and “Abaana World,” which sells children's clothing with Ugandan animal themes. Both brands utilise products from Fine Spinners or commission manufacturing, targeting tourists. Abaana World also engages in some exports, utilising the Cotton made in Africa certification. However, both brands remain relatively small-scale operations and have not yet had a significant impact.

T-shirts of the Ugandan brand “Definition” which feature plain shirts from Fine Spinners

Abaana World outsources sewing of children’s clothing under their brand to Fine Spinners

Abaana World’s brand statement: “Natural, Ethical, Fun”

In either approach, attention must be paid to the situation where value addition to final products domestically does not necessarily lead to direct benefits for producers or stakeholders in the earlier stages of the supply chain. While there may be knock-on effects such as job creation in areas where value addition occurs, an increase in income for raw material producers, i.e. cotton farmers, is not directly linked even if final product manufacturing takes place domestically.

5.4 Current status and challenges of cotton certification systems and traceability

5.4.1 Traceability and certification systems

Traceability refers to the ability to trace back products from their source to the final products, following the entire production process. Traceability in food products is primarily concerned with safety for consumers, ensuring clear origin in case any issues are found, identifying causes. On the other hand, with fabric materials, traceability is linked to concerns about human rights violations, reducing environmental impact in the production process, and addressing animal welfare in materials such as leather. Therefore, traceability practices are typically linked with certification systems or standards set by companies in the value chain, supporting their value.

In other words, traceability initiatives do not exist independently but are tightly connected to certification systems or criteria set by companies to enhance the value of products or supply chains.

Thus, it is critical to understand how traceability contributes to value creation or value addition for the products or supply chains as a means or process, rather than existing as a standalone activity.

In recent years, there have been heated debates over traceability in the textile industry. In 2020, an issue arose in one of the major organic certification systems for cotton, GOTS, revealing that products that were not meeting the standards were certified due to systematic false applications in India[53]. In response, GOTS updated the standards in 2022 and enforced the updated standards from 2023, enhancing the traceability verification process for raw materials[54]. However, such efforts to strengthen traceability have increased the burden on suppliers (producers and distributors) without necessarily translating into increased value through making a difference in the products.

For instance, due to various standards and application processes among multiple certification systems, suppliers are required to register the same information several times repeatedly in different formats, leading to repeated time and effort spent on audits and information gathering. This situation is not only a concern for suppliers but also for manufacturers, which lead to initiatives for industry-wide improvements.

5.4.2 Current status and challenges of cotton traceability in Uganda

In Uganda, companies aiming to increase and sustain the value of their products and expand their market using international certification systems also need to adhere to traceability standards. GADC, the technical partner of the Survey, has established a system to register all producers and manage information on shipped cotton to comply with certifications such as GOTS and Fair for Life.

Farmer registration by a GADC field officer: many documents are required and take a long time to fill in

An example of a registration document

Vast amounts of documents kept at one of the GADC offices

Based on this management system, products meeting the requirements of each certification go through audits and are shipped with certification attached. In the context of Uganda's cotton industry, stakeholders along the supply chain face the following challenges regarding traceability:

(1) Suppliers' cost burden

Suppliers bear the expenses for registration, information management, human resource, logistics, and audit[55] costs imposed by certification bodies.

[53] "GOTS detects evidence of Organic Cotton Fraud in India" https://global-standard.org/news/gots-press-release-gots-detects-evidence-of-organic-cotton-fraud-in-india

[54] "GOTS Significantly raises requirements for certified gins" https://global-standard.org/news/gots-raises-requirements-gins

[55] In order to obtain GOTS certification in Uganda, applicants must undergo a process of inviting audit staff from third-party certification bodies based in other countries such as Ethiopia or Kenya. The applicant is required to bear the full cost of their stay. During this process, which continues over 50 days throughout a season, selected producers are audited daily, and audit staff visit their production sites randomly.

(2) Suppliers' workload

Besides costs, visiting all farms, filling out documents to be submitted, and managing information impose significant operational burdens on the stakeholders. In regions like Northern Uganda, with scattered small-scale farms and limited transport means, information collection efficiency is quite poor.

(3) Lack of value return to the suppliers

In the export market, cotton as a commodity is differentiated through traceability and certification, particularly organic certification in the case of GADC. However, as previously mentioned, traceability works as a means, as a necessary process for obtaining organic certification rather than directly increasing the market evaluation or raising the price of GADC's cotton. While traceability may contribute to GADC's cotton being selected in the market, it does not instantly increase the market value of cotton or profits for GADC.

5.4.3 Potential improvements for cotton traceability in Uganda

In response to the mentioned challenges, several improvements to the traceability system can be proposed as below. In view of the complex situation and the need for tailored approaches to address them effectively, these proposals aim to make changes and explore better practices rather than provide immediate solutions to individual challenges.

(1) Digitalisation

Digitally inputting information directly from mobile devices at production sites can streamline data collection, data management and data utilisation. This includes recording GPS location information, images of producers and farms, enhancing accuracy. However, the costs of purchasing and maintaining mobile devices, communication expenses, and addressing technical issues must be carefully considered.

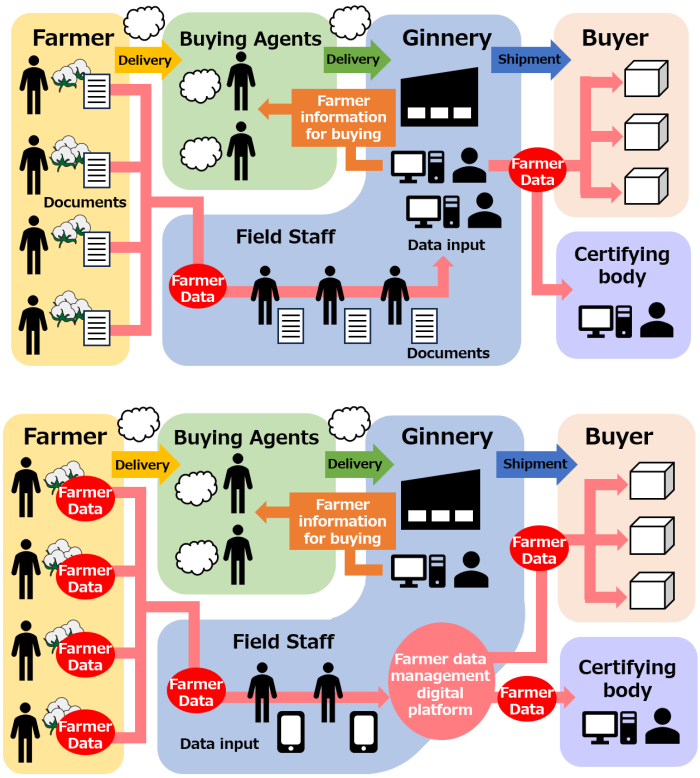


Figure 30: (Top) Current situation of the farmer data tracing flow
(Bottom) Farmer data tracing flow after the digital platform is introduced

In Uganda, there was a joint project involving parties in the public sector such as MAAIF, private enterprises and a development partner, to introduce a traceability system using digital platforms like the one mentioned above to improve the quality of grain and legume seeds. However, the initiative was not rolled out nationwide and the project was terminated[56].

(2) Addition of impact assessment functions

Assuming a supply chain involving refugees and improving their livelihood can add value to the products, there will be a need for clear accountability beyond the information collected through the existing traceability system. It becomes necessary to quantitatively understand and visualise "how many refugees are involved and what extent of income improvement was achieved" as an additional measure of accountability.

Buyers who are willing to support the initiative of supporting refugees through cotton production, such as apparel manufacturers from developed countries like Japan, seek not only CSR but also aim to create their better corporate image, stimulate media and consumer interest, and increase product sales by adding such information to their final products. In recent years, there has been increasing criticism against initiatives that claim social impact without quantitative measurement, labelling them as "ethical washing" or "SDGs washing", and consumer awareness has been growing in response. Against this backdrop, it can be said that utilising social impact as product value and ensuring secured traceability and accountability are undetachable.

In terms of the information to be collected, such as the status of farmers (refugees or HC members) and changes in income before and after engaging in cotton production, improvement of the information collection processes through digitalisation and system implementation discussed in the previous section become essential. Furthermore, to ensure that the burden does not solely fall on certain stakeholders within the supply chain such as producers and distributors, it is necessary to gain understanding from buyers in the later part of supply chain, such as apparel manufacturers and end consumers. The additional effort and the costs involved need to be transferred to the item value accordingly. More directly, redistribution of values is necessary, where the transparency and visualisation of impacts on refugees increase in the final product's price, with the added amount being returned to producers and distributors who carry the extra burden through the traceability and impact assessment process.

There are existing examples of initiatives that collect and analyse individual farmer information not only for traceability purposes but also to explore new business opportunities in the medium- to long-term, although they are not necessarily aiming directly for impact assessment with the same approach described above.

For example, Asili Farms[57], which operates large-scale farms in Northern and Western Uganda and also purchases from contract farmers in the area surrounding the farms, manages information of their contract farmers on a digital platform[58] developed and operated jointly with an Indian company. In the future, they will aim to refine production planning based on information collected over multiple years, understanding the capacities of farmers based on collected data.

They also intend to utilise this information for credit management when providing loans directly or through financial services such as banks or micro finances. Similar initiatives exist in Kenya and Ghana as well[59].

[56] USAID/UGANDA FEED THE FUTURE MARKET SYSTEM MONITORING ACTIVITY (2018) "POSTMORTEM ON RECENT EXPERIMENTS WITH E-VERIFICATION IN UGANDA'S SEED SECTOR September 2018"
[57] https://asili.ag/
[58] https://www.amsaf.africa/
[59] eProd (https://www.eprod-solutions.com) from Kenya, Degas (https://degasafrica.com) from Ghana.

6. Pilot Activity

A pilot activity was conducted under this Survey from July 2023 to February 2024 in Zone 1 in the Bidibidi Refugee Settlement in Yumbe District. This pilot activity focused on organic cotton production by refugees and HCs. The following report gives an overview, results, and points for consideration that were gleaned from the activity.

6.1 Pilot activity

6.1.1 Overview of pilot activity

The purpose of this pilot activity was to examine the potential of cotton production to improve the livelihoods of both refugees and HCs. Understanding practical procedures and challenges of the activity contributes to fulfilling one of the objectives of this Survey, namely, to analyse strategies, approaches, and points for consideration in the implementation of similar activities.

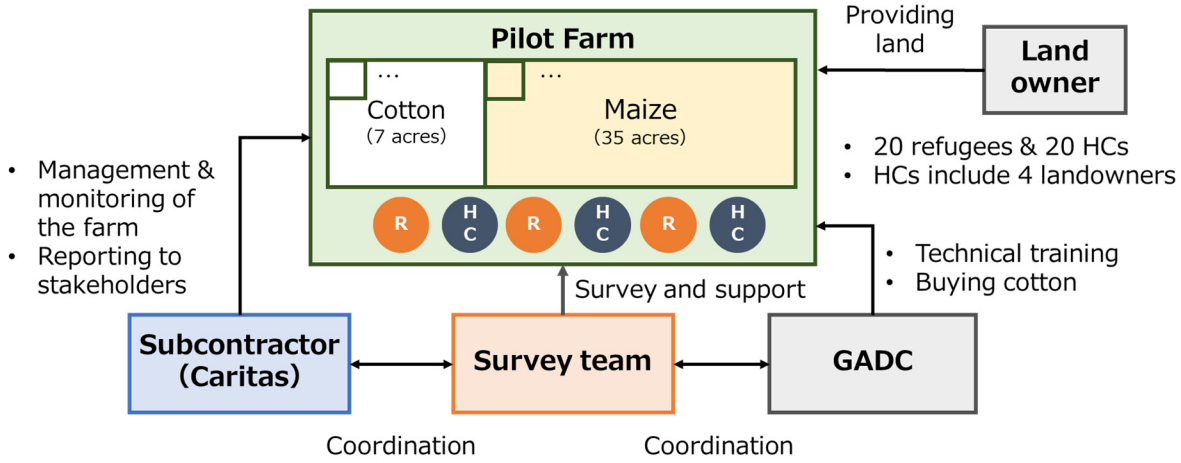


Figure 31: Implementation structure of the pilot activity

Twenty people from each of the refugees and HCs (40 people in total) participated in this pilot activity. Four landowners participated as HC beneficiaries. Caritas, an Arua-based NGO which has a branch in Yumbe, managed and monitored the activities as the subcontractor. GADC provided technical guidance on organic cotton cultivation and purchased the cotton harvested from the pilot farm. The Survey team coordinated with these stakeholders to smoothly implement the entire activity and to identify advantages and challenges.

The Survey team cleared approximately 42 acres to implement the activity. The 42 acres approximately consist of 7 acres for cotton and 35 acres for maize. Out of the 7 acres for cotton, the participants cultivated in total 6 acres suitable for sowing at assigned individual plots. A maize field was similarly divided into 40 plots for each member. The size of each person's plot was approximately 20 m × 30 m for cotton and 100 m × 33 m for maize.

6.1.2 Implementation procedures of pilot activities

■ Selection of the subcontractor and identifying procedures for pilot activities (late June to mid-July 2023)

The Survey team selected Caritas as the subcontractor for the pilot activity. Caritas has experience in implementing block-farming targeting refugees and HCs in the settlement. Based on a discussion with Caritas, the Survey team identified procedures and points for consideration for the pilot activity.

In the beginning, the plan was for the pilot activity only to deal with cotton cultivation for both refugees and HCs. However, the Survey revealed that food security is the priority for refugees as food distribution is decreasing (see Section 2.4 for details). Therefore, maize was added so that refugees can combine cotton cultivation with food production (Table 33). The Survey team applied the same arrangement to the HCs to ensure fairness.

Table 33: Support provided to the participants during the pilot activity

Crops	Support	Remarks	Provider
Cotton and maize	Land and land-clearing	Clearing the land covered by trees and shrubs	The Survey team (Caritas provided the materials, and the land was cleared by the land-clearing company)
	Monitoring	Field monitoring by local Caritas staff	
	Shelter	Materials to build a rain shelter hut (i.e., nails and tarpaulins)	
Cotton	Inputs	Seeds, strings, materials of natural pesticides, spray pumps, etc.	
	Technical guidance	Training in cotton cultivation	GADC
	Harvest	Storehouse for cotton, sisal bags, scales, and trucks for buying cotton	
Maize	Seeds	Maize seeds for food production	The Survey team provided this through Caritas

- Pilot farm selection and explanation to landowners (mid-July to late July 2023)

In collaboration with Caritas, the Survey team selected a pilot farm site. First, the Survey team visited two sites in Zone 3 because Caritas was previously working with the landowner. However, these sites could not be secured because the land size was not sufficient based on the GPS measurements. Additionally, some landowners would not agree to provide land due to certain complications.

After searching for land again, the Survey team secured the farmland in Zone 1. The land is so-called customary land owned not by an individual but by a family. Therefore, the Survey team carefully explained the land use to all land-owning family members. Based on their request, the Survey team added four land-owning family members to the pilot activity participants.

Due to time constraints and delays in the initial move by Caritas, the Survey team negotiated directly with the landowners. However, stakeholders later commented that the land should have been secured through OPM and prior coordination with landowners is the mandate of IPs. This is an important point for consideration for future projects in the settlements.

- Selection of participants (late July to early August 2023)

Caritas selected 20 refugees and 20 HCs (40 participants in total) for the pilot activity. The selection, supported by local leaders such as RWC1 and LC1, gave priority to farmers with experience in cotton cultivation and agriculture. The Survey team explained the purpose and outline of the activity to refugees and HCs respectively.

Refugee participants expressed concerns about the long distance from their settlements to the pilot farm. Despite the participants being selected from the nearest settlement, the distance to the farm was approximately 7 km. The Survey team explained the reasons, such as difficulties in securing large farmland near the settlement, and encouraged refugees to actively commute to the farm, to which they agreed. By way of exchange, the Survey team decided to provide materials, i.e., tarpaulins and nails, to build a hut to shelter the participants from the rain.

- Land opening (late July to early September 2023)

After the site was selected, the land-clearing company started working on the farm through Caritas. However, only 7 acres were cleared by early August, which was the deadline for sowing cotton seeds agreed with stakeholders. The Survey team observed some challenges in land-clearing: the land had not been used yet and was deeply covered with trees and shrubs, which made the work too heavy, with only a few companies handling heavy machinery in the West Nile Sub-region, and there were also some challenges in communication between Caritas and the land-clearing company.

Therefore, the Survey team hired one additional bulldozer so that the land-clearing could continue with two bulldozers. As a result, 42 acres of land were cleared by early September. The cleared land was tilled once by a tractor before sowing seeds.

- Technical training by GADC and cotton growth (August 2023 to February 2024)

Technical training sessions provided by GADC on organic cotton cultivation were conducted for 40 participants on the following dates. Caritas coordinated with the participants in each session, and GADC staff acted as instructors. The Survey team accompanied all training sessions.

Table 34: The curriculum of technical training in organic cotton cultivation by GADC

Date (2023 / 2024)		Topics	Remarks
1.	8th Aug.	Sowing seeds	Sowing seeds on the pilot farm
2.	19th Aug.	Thinning and gap-filling	Thinning plants after germination and additional sowing in gaps
3.	2nd Sep.	Making natural pesticides	Making natural pesticides out of locally available materials such as neem and chilli
4.	14th Sep.	Spraying pesticides	Explaining how to spray plants and how to use a spray pump when spraying natural pesticides
5.	29th Sep.	Pest and disease management, etc.	Scouting and monitoring for pests and diseases, preparing molasses traps, explaining pruning and weeding, registration of the participants as organic cotton farmers
6.	19th Oct.	Registration for organic certificate	Explaining the definition, advantages, and procedures of organic certificate, and registration
7.	23rd Nov.	Post-harvest management	Explaining how to harvest cotton Explaining how to dry and store cotton after the harvest
8.	6th Dec.	Recording and storing	Explaining how to keep records and store cotton properly in the storeroom (to a storekeeper only)
9.	11th Jan.	First buying	Buying cotton by GADC
10.	27th Feb.	Second buying	Buying cotton by GADC supported by the Survey team

In the first training session, held in early August, the participants collaboratively sowed cotton seeds on 7 acres of land. The distribution of plots for cotton to each participant took place after this sowing. Plots were distributed randomly by lottery because of the difference in land conditions (e.g., flat and with good drainage) and plots with poor conditions (e.g., plots with slopes and tree stumps).

Most of the participants had no experience in cotton cultivation and showed high levels of interest in the new crop and its cultivation techniques. On the other hand, some participants said they did not want to sow for other participants who did not attend the training. The refugees and HCs generally had a good relationship. For example, sowing was done in small groups with a mix of the refugee and HC participants.

On 19th August, the third training session on cotton thinning and gap-filling was conducted. Thinning is a process to remove excess plants so that each plant will be single-standing and has adequate space to grow. Gap-filling is an additional sowing in gaps where plants showed no germination. The participants tried to make the spacing of the cotton plants as uniform as possible through these processes.

Pilot farm after land-clearing

Cotton seeds

Sowing seeds on 8th August

On 2nd September, GADC conducted a training session on weeding and making natural pesticide. The group prepared natural pesticides with large drums using locally available materials such as neem and chilli. The attendance rate of the participants at this training was relatively low. Those who did not attend the session said their absence was due to health problems and funerals. Caritas announced the importance of this pilot activity and the training sessions to the participants again.

On 14th September, the participants were trained in how to spray natural pesticides using a spray pump. On the day, it was difficult for refugees to come to the distant farm due to rain, so GADC lectured and demonstrated these topics near the residences of refugees and HCs.

On 29th September, GADC registered participants as organic cotton farmers before the training. After the registration, a training session on pest control and other cultivation techniques, such as molasses traps, pruning, and weeding was conducted. Since weeding is one of the important factors influencing yield, Caritas followed up with the participants to see if they had completed the weeding even after the day of this training.

As of September, the heights of cotton plants were 30-70 cm, and they were about to flower. Rainfall was sufficient and the cotton plants were growing well. However, many participants had to work on sowing maize seeds in the month. Maize sowing was completed at the beginning of October. There was also a problem in that cattle grazed by a neighbour entered the farm and trampled the plants. Caritas and the Sub-county officials contacted the cattle owner and received apologies from him.

Weeding of a pilot farm

Making natural pesticide

Pilot farm as of 19th September (40 days after sowing)

There was a large difference in the growth of cotton plants among individual plots. This difference can be attributed to three factors: (1) soil condition, (2) drainage, and (3) management by the participants in each plot. Some plots with dips were flooded by (2) drainage which prevented the plants from growing well. Factors related to (3) management by the participants include the frequency of weeding, pruning, and whether or not the natural pesticide was sprayed.

Panoramic view of a pilot farm as of 19th October (70 days after sowing)

Plot with good management: plants were growing well

Plot with poor management: plants were growing well

Plot with good management: plants were suffering from excess moisture

Plot with poor management: plants were showing poor growth

Caritas reported to the Survey team that some participants, especially refugees, did not come to the farm very often. The Survey team interviewed the participants in the mid-term survey in November and it turned out that, at that moment, many of them were busy harvesting crops at other farms or sending their children or neighbours to the farm on their behalf. Caritas reported that this situation was improved in November.

Dealing with these challenges, the Survey team asked Caritas to remind the participants of the importance of plot management, which can directly influence the yield and income. The Survey team also requested Caritas to engage in dialogue with the participants who rarely came to the farm individually.

On 23rd November, GADC conducted a training session on post-harvest management. GADC explained to the participants how to harvest and store cotton properly. For the cotton storage, GADC rented a storehouse near a pilot farm so the participants could bring their harvest.

As of early November, weeding was done on 3/4 of the individual plots for cotton and 2/3 of the individual plots for maize, thanks to close monitoring by Caritas field staff. On the other hand, pests, especially cotton stainers, were found frequently on the farm. Caritas reminded the participants to spray the natural pesticide on their plots.

Despite the fact that more participants started coming to the farm, some continued not to come to their plots even after the discussion with Caritas. The lack of management affected the cotton growth, so the Survey team and Caritas decided to remove seven people (six refugees and one HC) from the participants. Their plots (14 plots of cotton and maize) were redistributed to those motivated participants out of the remaining 33.

In late November, the Survey team conducted a mid-term survey. The Survey team interviewed four of the seven participants who had dropped out. It confirmed that their dropouts were due to personal reasons, e.g., family problems (one participant), poor health conditions (two participants), and a community problem (one participant). For the remaining three participants, the Survey team confirmed

to Caritas that their dropouts occurred due to relocation to another settlement, a busy schedule, and poor health conditions.

Cotton stainer

Mid-term survey

Storehouse for cotton rented by GADC (on the right)

Panoramic view of pilot farm as of 20th November (100 days after sowing)

Plot with good growth as of 20th November (100 days after sowing)

- Harvest of cotton and buying by GADC (December 2023 to February 2024)

In December, the cotton harvest began. Despite gaps in the level of plant growth among individual plots, all plots observed bolls; therefore, no plot suffered from zero-harvest. GADC provided scales and bags for the cotton harvest.

GADC selected one of the participants as a storekeeper, who weighed and recorded the harvested cotton. The storekeeper received UGX 100/kg from GADC as a commission based on the cotton yield.

The cotton buying took place once in January and once in February 2024. In January, GADC collected the cotton by truck and directly paid the participants. The rest of the harvested cotton was reimbursed in February with the assistance of the Survey team.

Panoramic view of the pilot farm as of 7th December (120 days after sowing)

Training of storekeepers by GADC

Inside the cotton storehouse

Buying cotton by GADC

Record of each member's harvested cotton

Participants of the pilot activity attending the first buying

The table below shows challenges observed during the harvest and buying cotton as well as potential measures. The Survey team compiled these challenges through interviews with the participants during the final survey in February.

Table 35: Challenges and potential measures for harvesting and buying cotton

	Challenges	Potential measures
1.	Members could not store the cotton due to the absence of a storekeeper	Organising a structure whereby each participant can contact storekeepers in advance
2.	A part of the cotton left in the plots by participants was damaged by pests and rain	Reminding the participants of the importance of harvesting at the right time
3.	A gap arose between the amount of harvested cotton recorded by a storekeeper and that which was measured by GADC when buying cotton	This can be attributed to multiple factors, including measurement mistakes and water evaporation from the cotton. It is key to decide in advance the measures for the gap, e.g., who will bear the cost among stakeholders.

As a result, 33 participants (14 refugees and 19 HCs) harvested 1,113 kg of cotton in total. No participant who completed cotton cultivation suffered from zero-harvest. GADC bought the cotton at a higher price than the indicative price. The buying price was UGX 1,700/kg (indicative price of UGX 1,500/kg) for the first buying and UGX 1,800/kg (indicative price of UGX 1,700/kg) for the second buying.

The yield of cotton in the pilot farm was approximately 200 kg/acre. This is lower than 350 kg/acre, the average yield for 2023/24 obtained through interviews with cotton farmers in this Survey. One of the main reasons was the damage caused by the cotton stainer. GADC pointed out that the rampant attacks of this insect were due to the participants' late spraying of the natural pesticide. However, more information needs to be collected to clarify how effectively natural pesticides can control insects, because maggots were observed during the fermentation of pesticides.

Damage by excess moisture also significantly suppressed cotton growth. In November 2023, the area had relatively abundant rainfall[60]. Adding to this rainfall, cotton plants that are sensitive to excessive humidity suffered from waterlogging in some plots. Another reason is tillage: while two rounds of tillage are required before cultivating cotton, the pilot farm only went through single tillage due to time limitations, which may have caused waterlogging. The participants worked on management practices such as weeding and proper spacing of plants under the supervision of Caritas. While there are some differences in the level of these practices, it was probably not the main reason for the low yield.

Another potential reason for the yield loss is GADC's instruction regarding pruning cotton branches. GADC instructed the participants to prune the plants at 8 to 10 nodes. However, cotton develops only

[60] https://ug.freemeteo.com/

vegetative branches for the first 5 to 7 nodes[61]. Therefore, the pruning may have prevented the cotton plants from growing enough reproductive branches.

Regarding cotton yield, HCs harvested more than double the amount harvested by the refugees. This was probably because six dropouts were refugees and their plots were redistributed mostly to HC participants, who also had better access to the pilot farm and were therefore more easily able to access and manage their plots. The table below summarises the breakdown of yields and sales for the refugee and HC participants.

Table 36: Quantity and sales of cotton by refugees and HCs

Buying	Refugees		HCs	
	Quantity (kg)	Sales (UGX)	Quantity (kg)	Sales (UGX)
First buying on 18th Jan. Buying price: UGX 1,700/kg	326	554,200	657	1,116,900
Second buying on 27th Feb. Buying price: UGX 1,800/kg	23	41,400	107	192,600
Total	349	595,600	764	1,309,500

In the final survey in February, the Survey team interviewed 24 participants (12 refugees and 12 HCs) who continued cotton cultivation until the end. The objective of this interview was to summarise the pilot activity and identify points to improve for future interventions. Key comments are below:

Many participants expressed their satisfaction and appreciation for the pilot activity. They highly appreciated the combination of cotton and maize, namely a cash crop and food crop. Recently, many refugees have experienced difficulties securing their farmlands. Thus, they were grateful that the Survey team cleared the pilot farm and provided the land ready for cultivation. They said that they want this activity to continue given that food distribution is declining.

Cotton was a new crop for most of the participants. They valued the knowledge of cotton cultivation gained through the GADC training. They said that the cultivation and marketing of cotton is relatively easy. They also appreciated that GADC rented a storehouse near the farm and came to the farm by truck to pick up the cotton. Thanks to this arrangement, the participants could gain cash instantly. It was easier than other crops that farmers needed to bring to the market by themselves.

The refugees and HC participants forged a good relationship throughout the activity period. They shared small amounts of money to buy food for lunch and sometimes engaged in friendly conversation with participants from neighbouring plots. The Survey team observed that several refugees established networks with the HC participants and borrowed farmlands for their production from the following season. The participants appreciated two field staff from Caritas for their close monitoring of the farm and for engaging in dialogue with them.

The challenges raised by the participants include the small plot size for cotton and the late start of the pilot activity, such as the timing of sowing cotton seeds.

6.2 Points for consideration regarding cotton production by refugees and HCs

The pilot activity offered technical insights into understanding the characteristics of cotton cultivation in the Survey target area. It was also useful to verify the cultivation techniques of organic cotton instructed by GADC (see Section 4.5 for details).

Below are points for consideration on block-farming involving refugees and HCs as gleaned from this pilot activity.

[61] Oosterhuis, D. 2001: PHYSIOLOGY AND NUTRITION OF HIGH YIELDING COTTON IN THE USA Informacoes Agronomicas (95 (Encarte Tecnico)): 18-24

(1) Target site selection and securing land through OPM

Target site selection is a critical process that greatly affects the results of a pilot activity. The selection should take into account multiple factors such as access for both refugees and HCs, the process of land-clearing, and soil conditions.

In principle, OPM secures the farmlands for activities in the settlement through negotiation with landowners. Ideally, OPM and the landowner are supposed to directly engage in the written agreement on the land lease. However, this process takes time. This is why the Survey team negotiated with the landowners after informing OPM in this activity. However, OPM commented that from next time, any project should secure the land through OPM rather than by directly communicating with the landowner.

(2) Coordination with landowners and consideration for their incentives

Landowners are one of the core stakeholders, as they provide the agricultural land. It is essential to explain to landowners in advance the activity and the expected duration of land use. Any future project should discuss the details with them, e.g., the need for a written agreement and the objectives of the intervention, before starting the actual intervention.

For example, a landowner in this pilot activity told us during an interview: “OPM surveyed our land many times in the past. I was worried that my land might be suddenly taken. However, the Survey team explained the intention in detail and started clearing the land immediately, so I felt that we could trust them.”

Caritas also commented that, as an IP, they are the ones negotiating with the landowner. They added that development partners should not directly engage in the negotiation with landowners. It is necessary to clarify the roles, timelines, and responsibilities of the IP and the project in advance.

In refugee settlements in Uganda, landowners provide land to OPM free of charge. This is because OPM fears that making a financial contribution to landowners will increase the value of their land in refugee settlements. However, the Survey has revealed that some landowners are dissatisfied with this situation and want to receive some incentives.

In addition to financial contributions, providing reasonable incentives to landowners can lead to the smooth implementation of the project. One way is to include landowners as beneficiaries, as in this pilot activity. Some NGOs implementing block-farming provide an in-kind incentive such as agricultural inputs and livestock. Land-clearing and construction of facilities are a great benefit to the landowners too.

Refugees sometimes share a part of their harvest or cultivate another plot for landowners when they rent the farmlands from the landowners. However, it is difficult to set up the project in this way. What is important is to confirm the ideas of landowners and to consider their wishes within the frame of the intervention.

(3) Land-clearing

As of late, the importance of securing farmlands in settlements is increasing as food distribution is in decline. To secure large farmlands, site selection should look at tree- or shrub-covered land in and around settlements. Clearing such unused land takes time. It is essential to select the land-clearing company and proceed with the contracting procedures on-time.

This pilot activity suffered from a delay in land-clearing. This was due to multiple reasons including a breakdown of a bulldozer, delays in the machine delivery, and unfavourable weather. The lesson learnt

is that monitoring the situation on the ground by coordinating with IPs and physically visiting the site is vital for moving the process along in a timely manner.

(4) Considerations to benefit a wider range of refugees and HCs

In this pilot activity, the Survey team selected refugees and HCs who have experience in cotton and other crop production. This was because the priority was to realise cotton cultivation. Since the pilot farm was 7 km away from the refugee settlements, the Survey team had to select motivated farmers who promised to continue the cultivation until the end of the pilot activity.

However, there are many more physically vulnerable refugees such as disabled and elderly persons in the settlements. In female-headed households, it is often difficult for the household head to commute to distant farmlands because household chores and children occupy her time.

However, it is these vulnerable households that will be most affected by the reduction in food distribution. Future activities need to support a broader range of refugees and HCs so that beneficiaries can feel the impact of livelihood improvement.

For example, future projects may consider the following measures: formulate farmer groups with socially vulnerable people, encourage the groups to discuss how they can support socially vulnerable people, create small huts on the farm so that mothers can leave their children while they are farming, etc. If the distance to the farm is too far for these socially vulnerable people, the activity may adapt different approaches besides block-farming to involve these households.

(5) Promoting collaboration with refugees and HCs

Through this pilot activity, the refugees and HCs formed a good relationship. The final survey revealed their mutual appreciation. The refugees and HCs collaborated by working together in neighbouring plots and sharing food. Some refugees borrowed farmlands for the next season, the first rainy season in 2024, from the HCs. The Survey team considers these collaborations beyond the limited pilot activity period to be a positive side-effect.

Future interventions can further promote these collaborations by stimulating communication between refugees and HCs. The examples below show how these measures were incorporated into this pilot activity.

- When dividing individual plots, instead of separating plots for refugees and HC participants, the Survey team mixed them to stimulate their communication.
- Training sessions targeted refugees and HCs at once. For example, during the sowing session, participants spontaneously formed small groups with a mix of refugees and HCs. The small groups worked hard to sow cotton seeds.
- Both refugees and HCs participated in the Security Committee of the pilot farm. Still, HCs, whose residences were closer to the pilot farm, mainly engaged in patrolling the farm.

(6) Dealing with field-level challenges in block-farming implementation

This pilot activity faced some field-level challenges during the implementation. Future projects should engage in coordination to solve these challenges because it will positively impact the implementation process and ensure beneficiaries' satisfaction with the activities. The table below shows the challenges identified through the pilot activity and their potential measures.

Table 37: Challenges and potential measures regarding block-farming implementation with the focus on agricultural production (lessons learned from the pilot activity)

	Challenges	Potential measures
1.	Long distance from settlements to farm	Build huts or provide materials so that participants can stay overnight at the farm
2.	Crops damaged by livestock and wild animals	Establish a Security Committee to patrol the farm, discussing with people who keep livestock with the support of local leaders (LC1)
3.	Long distance from farm to water point	The Project team supports water collection during training, while some development partners combine block-farming with construction of wells
4.	Crops (mainly maize) being stolen by neighbours	Establish a Security Committee to patrol the farm
5.	Differences in soil conditions among plots	Exclude plots with bad soil conditions before the distribution if possible

It is important to set contact persons for these possible challenges, and providing contact information to participants in advance will lead to early reporting of their questions and dissatisfactions.

In addition, during the training session by the group, the Survey team received queries from the participants regarding drinks and refreshments during the training. The Survey team and Caritas earnestly discussed this with the participants and requested the participants to reconsider positioning and importance of the activity for their livelihood.

Management of participants' motivation will be very important in promoting cotton, a cash crop, because food distribution has been decreasing. Making persistent efforts such as frequent visits to the farm will build a rapport between the intervention and the participants.

(7) Smooth communication among stakeholders

Activities in refugee settlements demand coordination with many stakeholders such as OPM, UNHCR, and IPs. Smooth coordination is key to its implementation, such as securing land that has a significant impact on the activity. For example, a block-farming project in the past struggled with coordination with landowners complaining about their land use after the activities were started.

To deliver benefits to each beneficiary, coordination with the IPs who monitor and supervise the farm is critical. In the end of this pilot activity, one of the Caritas field staff commented, “It was encouraging that the Survey team worked together with us to find solutions to the challenges and didn’t simply leave it to the IPs.” Building a partnership with IPs will positively impact the participants.

7. Potential of Cotton Production by Refugees and HCs in the West Nile and Acholi Sub-regions

7.1 Block-farming implemented by IPs

The challenge of cotton cultivation in the survey targeted area is to expand the cultivation area, which will contribute to an increase in production and stable supply. For this, block-farming[62] involving refugees and HCs can be a model scheme. The Survey team interviewed five organisations with experience in block-farming in the refugee settlements in the West Nile and Acholi Sub-regions.

Table 38 summarises the details of five organisations' block-farming activities. They are all referred to as "block-farming", but the objectives and details of the activity vary. For example, IRC, which was active around 2018 when food distribution was abundant, commented that its objective was income generation through the cultivation of cash crops. On the other hand, organisations recently working in the settlement (i.e., Caritas, CEFORD, ForAfrika) set their primary objective as food production.

They design the contents and the logistics of their activity depending on their purpose. For example, an objective of CEFORD is to strengthen existing farmer groups. For this, they provide agricultural inputs not to individual farmers, but to farmer groups that submit a business plan on farming and marketing in the form of funding. Marian Brothers carried out small-scale block-farming as their activity with limited funds, so they did not employ a Community Based Officer.

Implementation processes also vary depending on the organisation. Caritas first secured a farmland and then selected target farmer groups. Others like ForAfrika and CEFORD encourage their participants to directly negotiate with landowners and secure land by themselves. Field operations also depend on the land condition and the progress of the cultivation. Nonetheless, all organisations seemed to face similar challenges during their operations (see table below).

Table 38: Challenges in block-farming implementation and countermeasures taken by each IPs

	Challenges	Remarks	Countermeasures
1.	Cultivation	Insufficient rain and pests and diseases	Field monitoring and technical assistance Confirming how to deal with pests in advance
2.	Accessibility to farm	Refugees often suffer from securing water and avoiding rain as they live far from the field	Building huts or providing the materials for the huts, e.g., tarpaulin
3.	Security	Crops are sometimes stolen or damaged by livestock and wild animals entering the field	Making fences surrounding fields Having fields patrolled by participants
4.	Motivation of the participants	Low participation or a gap in the motivation of the participants	Having a dialogue with the participants with low motivation Close monitoring of the farm by IPs
5.	Collaboration with landowners	Landowners complain about providing a large area of land for free	Adding landowners to beneficiaries Providing some of the crops

[62] This report defines block-farming as an activity that meets the following criteria: (1) IP supports agricultural activities through training and/or distribution of materials, (2) both refugees and HC residents participate, and (3) farmland is clustered at least in groups. If several people are cultivating in one location, it does not necessarily mean that they are all cultivating together. For example, IRC scattered several plots in one zone.

	Challenges	Remarks	Countermeasures
			harvested from the farm to landowners

Block-farming is a scheme that can adapt to various objectives of development partners and IPs. Despite their diversity in implementation, there are common challenges as mentioned above.

Table 39: Outline of block-farming activities implemented by IPs

IPs	Caritas	CEFORD	ForAfrika	IRC	Marian Brothers
Objectives	Food security and livelihood improvement	Livelihood improvement and organization of farmer groups	Food security and livelihood improvement	Income generation	Information not available
Target areas	Bidibidi	Bidibidi	Rhino, Robule, Palorinya, Imvepi	Bidibidi	Bidibidi
Period	2021-2023	2020 to present	2021 to present	2018-2020	2021-2023
Donors	UNHCR	HEKS-Eper	Funded by themselves	Bureau of Population, Refugees, and Migration of the US	Funded by themselves
Beneficiaries	450-500	Approx. 900 (30 groups)	192 in total in 4 settlements	300-1,000	37
Areas	450-500 acre (1 acre per person)	2-10 acres per group	225 acres in total in 4 settlements	3.5-10 acres per group	21 acres
Crops	Maize, rice	Cassava, soybean	Maize, sesame, sunflowers, etc.	Cassava, maize, sunflowers, etc.	Cotton
Land secured by	Refugees and HCs	Refugees and HCs	Refugees only	Refugees and HCs	Refugees only
Activities	- Providing farmland & inputs - Payment for land clearing - Training in cultivation and Village Savings and Loan Association (VSLA), etc.	- Providing farmland - Funding farmer groups - Training in cultivation and VSLA, etc.	- Providing farmland - Providing agricultural inputs - Training in cultivation and livelihood improvement	- Providing farmland - Funding farmer groups - Training in cultivation and livelihood improvement	- Providing farmland - Training in cultivation and livelihood improvement
Land selection	Caritas secured the land through OPM. OPM concluded the MOU with landowners.	Each farmer group secured the land through negotiation with landowners. CEFORD supported farmers.	Each farmer group secured the land through negotiation with landowners. Landowners, OPM, and the participants discussed together. MOUs are not mandatory.	Stakeholders discussed and OPM, landowners, and farmer groups concluded the MOU.	Marian Brothers secured the land through OPM.

IPs	Caritas	CEFORD	ForAfrika	IRC	Marian Brothers
Selection of beneficiaries	After land selection, beneficiaries are selected through LC and RWC.	After identifying zones, target existing farmer groups are selected.	Farmers who had benefited from the previous project become beneficiaries.	Beneficiaries are selected through LC and RWC.	Information not available
Land clearing	Refunded 0.3 million UGX per acre for the land cleared and tilled by the participants.	Cleared by the participants	Clearing by the participants, but some landowners provided already-cleared land to the groups.	Refunded 0.12 million UGX per acre for the land cleared and tilled by the participants.	Information not available
Financial support and mode of payment	Distributed SIM cards to participants and UNHCR sent mobile money.	Payment made to the bank account newly opened by each farmer group	No financial support	Payment made to the bank account newly opened by each farmer group	No financial support
Mode of providing inputs	Direct distribution of seeds, farming tools, and fertilisers	Each farmer group procured from the budget	Direct distribution of seeds, farming tools, and fertilisers	Each farmer group procured from the budget	Only seeds are provided by GADC
Community Based Officer*	3	8	2-3 per settlement	2 per zone	No
Remarks	As an IP of UNHCR, Caritas newly organised farmer groups at each block and promoted activities such as VSLA.	Registered existing farmer groups to the district as cooperatives and funded their activity.	Crop selection depends on settlements and individuals. Gradually reducing the support to the participants. They called it a “graduation model”.	Aimed to increase the income as it was implemented in 2018 when the food distribution was abundant.	Targeting Cotton and GADC oversaw technical guidance. An example of extension activity with minimum inputs.

*Community Based Officer is a farmer employed by IPs. Each IP uses a different term for these individuals. They are often in charge of mobilisation of the participants, supporting training, field monitoring, and data collection for the IP.

7.2 Feasibility of block-farming implementation for refugees and HCs

Based on the information gathered through this Survey and experiences of actual block-farming pilot activities, it is possible to practise block-farming and group farming with refugees and HCs.

As mentioned, the distance from the refugee settlement to block farms often becomes a major challenge if relatively large block farms need to be established outside the settlement. However, food assistance for refugees is significantly decreasing. Thus, in order to maintain refugees' life in the settlements, it is crucial to ensure land access as a top priority even if the block farms are far from their areas. If it is not possible to open a large block farm that can cover a large number of beneficiaries, opening a small block farm in the neighbourhood of the settlement also contributes land access. It is important to flexibly choose a suitable modality of block-farming among several options to ensure land access for as many refugees as possible.

The findings through the pilot activities and information from the interviews show that collaboration between refugees and HCs in the block farms can be implemented without any major obstacles. In the pilot activities, there was no significant gap between the refugees and HCs, and they did not seem to feel any resistance to working together on the same farm. However, when the farmer groups are to be organised, it would be desirable to form refugee and HC groups separately. This is because refugees and HCs live under different living conditions and physically apart, which might hinder efficient information-sharing.

The challenges for supporting partners, including UNHCR, IPs and development partners in implementing block-farming schemes, are securing land on potential sites and raising funds for land-clearing. In terms of securing land, the situation differs from settlement to settlement. Large sites are being designated for block-farming in the Bidibidi and Palabek Refugee Settlements. OPM is also willing to proceed with contracts with landowners for land agreement, and this is not a major barrier.

On the other hand, in the past, UNHCR and development partners funded the cost of land-clearing as cash for work, and refugees took the lead in manually clearing land, but such arrangements are not currently being made due to budget constraints. In the case of land-clearing using heavy machinery such as bulldozers, the costs of transporting heavy machinery and operating it are relatively large, and a substantial budget needs to be secured for the establishment of large block farms. In addition, additional budgetary resources are required when contracting with IPs to support activities in block-farming.

Although many stakeholders interviewed expressed serious needs to promote the establishment of block farms, there was no actual planning and budgeting for such schemes. Securing a budget for the establishment of block farms is a key issue.

7.3 Possibility of cotton production by refugees and HCs

Cotton is very different from other agricultural products because it is bought whole, in bulk and in cash, and the buyer comes to the farmer's garden/resident to buy it. For this reason, farmers who have cultivated cotton in the past have appreciated these characteristics. Many of them have expressed a willingness to continue growing cotton, even if they are not fully satisfied with the sales price. The fact that farmers themselves do not have to carry out marketing activities and can get cash on-the-spot is a huge advantage.

On the other hand, cotton does not generate a very high profit per land unit, and it is difficult to generate sufficient income unless cotton is grown on a certain scale. Thus, it is desirable to cultivate cotton on a site of about one acre, or at least a quarter-acre of farmland. This is not a major obstacle for HC farmers who have easy access to sufficient land, but it is essential for refugees to have access to farmland that is sufficient for cotton cultivation. Therefore, unless block-farming schemes are introduced and enough land is made available to refugees, it will be difficult for refugees to engage in cotton production.

The choice between organic or conventional cotton production is also determined by the availability of access to extension agents of the organic ginnery, such as GADC. In areas that are difficult to reach with GADC services, it would be possible to grow and sell conventional cotton by accessing UGCEA extension agents who promote conventional cotton cultivation, or agents who have been growing cotton for a long time and buying for ginneries. The table below shows some points to consider when refugees and HCs engage in cotton production.

Table 40: Points to be considered when engaging in cotton production

Points to be considered
Refugees • It is essential to secure enough farmland, including land needed for food production. Rather than renting land from HC residents, it is more suitable for using land provided by schemes such as block-farming. It is easier to receive technical guidance from outside sources if production is done collectively through a block-farming scheme. • It is important to indicate several farming options on how to balance food production with cash crop production such as cotton. • Cotton can only be harvested once a year, so it is less efficient use of farmland than crops that can be harvested twice a year. • In the case of cotton cultivation, seeds and pesticides are provided on credit, which can reduce the initial investment. This is an advantage for refugee households that have difficulties spending cash.
HC • Farmers who have no constraint regarding access to relatively large farmland are suitable. In some refugee settlements, cotton production has been practised by HCs for some time. Starting cotton production with such farmers will make the introduction relatively easy. • Combining cotton with other cash crops may contribute to household income stability. Income from cotton is easy to allocate for large expenditures (e.g., school fees or Christmas spending) due to its whole cash purchase. Some farmers call this “field savings”.
Organic cotton production • In the West Nile and Acholi Sub-regions, only GADC deals in organic cotton, so it is necessary to contact a GADC extension officer to register as organic cotton producers and receive field inspections. Without this process, there is no premium to be added as organic cotton. • Compared to conventional cotton production, organic cotton production requires more diligent management. It is also generally recognised that organic cotton has lower yields. But this Survey confirmed that the yield levels are almost the same due to no fertiliser application and intensity of management. • Natural pesticides can be prepared from free or cheap materials available nearby, such as neem and chilli, and require less cash investment compared to chemical pesticides used for conventional cotton production.

8. Sharing Survey Results and Feedback from Stakeholders

8.1 Outline of workshop with stakeholders in Yumbe District

A workshop was conducted as an opportunity for the Survey to share the results, including pilot activity, with stakeholders and get their insights. Participants and the workshop programme are shown below.

Table 41: Basic information on the workshop conducted in Yumbe District

Objective	Sharing the Survey results, including the pilot activity, and obtaining insights and feedback from the stakeholders
Date and Place	27th February 2024 at the Conference Room of Escape Village Hotel in Yumbe
Participants	• OPM: Settlement Commandant of Bidibidi Refugee Settlement (Settlement Commandant in charge of Zone 1, where the pilot activity was conducted, and Settlement Commandant in charge of Sector Working Group of Livelihood) • UNHCR: Livelihood focal person under UNHCR Yumbe Field Office • Yumbe District Production Office: District Production Officer (DPO) and Commodity Officer • NGO: HUBS Community Initiative's director (NGO formed by HC landowners) and Caritas (the subcontracting company for the pilot activity under the Survey, where a programme coordinator and a field assistant participated).
Programme	• Sharing the Survey results 1. Background and survey framework 2. Present conditions of refugees and HCs 3. Cotton value chain in Uganda 4. Cotton production in West Nile and Acholi Sub-regions 5. Pilot activity 6. Lessons learned • Q&A session (including obtaining stakeholders' insights) 

8.2 Feedback from stakeholders

Generally, positive feedback was given regarding the Survey results, especially the pilot activity conducted in the Bidibidi Refugee Settlement in Yumbe District. Some points were noted, such as an arrangement with OPM and landowners when acquiring land for the activity. Since the participants were implementation-level actors, the Survey team could exchange opinions deeply and realistically based on lessons learned from the pilot activity. The table below summarises the feedback from the participants. All comments were informative for future livelihood improvement approaches for refugees and HCs.

Table 42: Summary of feedback from stakeholders

Item	Comments
Measures to improve livelihoods of refugees and HC	
Livelihood improvement measures	***About the survey's response to mixing cash crops (cotton) and food production (maize)*** • It was a good and reasonable arrangement that the food production component was integrated with cotton production when implementing block-farming, as food production has been a critical factor for refugees recently. (Overall) • Agricultural support for refugees is very important because food aid for refugees has been cut in recent years. (UNHCR) • I appreciate that the Survey team prioritised food security for refugees. (OPM) ***About cotton as a cash crop*** • The livelihood strategy for refugees is critical to OPM. It was good that the pilot project included cotton, a cash crop. (UNHCR)

Item	Comments
Points to consider when implementing block-farming	• Rather than just caring for block-farming as a means of providing land for cultivation, it is also essential to think about technical support. Without caring for the technical aspects, production efficiency may be impaired, for example, by missing the planting season. (District Production Office) • Currently, the ratio of beneficiaries is 70:30 (HCs to refugees), so it should be noted that HC should benefit more from the livelihood improvement activities. (HUBS)
Implementation aspects of block-farming	
Land acquisition	***Procedures*** • For OPM, it has also been a recent challenge for IPs to negotiate with landowners and secure land directly without involving OPM. Since OPM is mandated to take care of land matters when implementing activities in refugee settlements, the rules should be followed. (OPM) • OPM and the landowner must sign a contract when securing land for activities. In anticipation of this procedure, conducting pre-arrangements and stakeholder meetings several months before actual activity started in the field (i.e., cultivation and sowing seeds) would be desirable. (OPM) ***Considerations for landowners*** • Consideration and support for landowners who provided land is also an issue. (UNHCR) • It is a good idea to involve the landowners in the activities. HC landowners do not expect land to be left idle after being provided for activities benefitting refugees, so the land should be utilised. When IPs implement any activities, landowners should also be benefited. (HUBS)
Land-clearing	• Which is recommended by the Survey team when opening land, either manual or bulldozer(UNHCR) ➢ For the first clearing of virgin land, which is tougher, the Survey team cannot determine whether to use bulldozers or pay cash for work (paying to have land cleared manually) in view of cost and opportunity. Due to time constraints, the Survey selected a bulldozer for land-clearing; however, cash for work can be considered if time allows. It should be noted that even using a bulldozer, clearing land took much longer than expected. (Survey team) • Land-clearing using a machine such as a bulldozer is recommended as it can cultivate more deeply than manual clearing, where stumps are left behind and the land will need to be cultivated again after a few years. (HUBS)
Environment	• Whether the Survey team considered the environmental impact of block-farming. If there is another opportunity to implement it, there should be measures to mitigate the environmental impact. (UNHCR) • It would be good to include some environmental conservation support in the programme. (HUBS) • The local government is divided into the Community Development and Environment & Natural Resources departments, responsible for assessing and planning tree-planting for environmental impact mitigation. It would be best if each department could receive funding. (District Production Office) • Tree-planting will improve soil fertility, which is beneficial for HC. (District Production Office)
Infrastructure, along with block-farming scheme	• For participants from the community, having a borehole is important. Even though irrigation cannot be performed, the community uses it as a potable water source for other income-generating activities. (HUBS) • It is challenging for refugees to access block-farming because of distance and road conditions. Thus, infrastructure such as roads should be improved. (District Production Office)

Item	Comments
Programme operation	• Any activities in refugee settlements are to be monitored by and reported to OPM. In the Bidibidi Refugee Settlement, zonal working groups and sector working groups have been established, where activity reporting is to be made by partners. (OPM)
Crop cultivation	• Although it does not have a long implementation history, in block-farming, managing continuous cultivation on the same land could be a challenge. For example, from a technical viewpoint, measures such as crop rotation and establishing fallow areas could be considered. The Survey team would want to learn from IPs and UNHCR regarding practical ideas on this matter. (Survey team)

9. Recommendation

9.1 Food production by refugees and securing farmland

Initially, this Survey planned to conduct a pilot activity focusing only on cotton production by refugees and HCs as a form of group farming. However, the focus was changed to mix food crop and cash crop (i.e., cotton) production simultaneously, since the Survey team identified that the refugees' food shortage was very serious due to the rapid decrease in food rations. This change was greatly appreciated by participating refugees and stakeholders such as OPM. The Survey team confirmed that to improve refugees' lives, the first priority for the refugees is food production rather than cash crop production.

Securing enough food is crucial for refugees to maintain a minimum standard of living, and to ensure this, the refugees need to get access to farmland in or around the refugee settlements to produce their food. Since most of the refugees are facing food shortages, it is crucial to promote the clearing of new large farmland sites under a transparent policy to ensure minimum access to farmland for more refugees. Under this situation, block-farming schemes could be very effective. It is also important to provide support for their agricultural activities to help them produce more food.

On the other hand, it was identified that the establishment of block farms would require a significant amount of budget and this would become a serious challenge. Measures to address this issue are discussed below in the section "9.6 Proposed activities and schemes."

9.2 Points for considerations regarding block-farming schemes

The Survey confirms that when establishing block farms and implementing block-farming schemes, a number of points need to be taken into account. The table below summarises these considerations.

Table 43: Points for consideration regarding block-farming schemes

Processes	Points for consideration
Coordination among stakeholders	• Discussions and coordination among stakeholders in refugee settlement operations, including OPM, district and sub-county governments, international organisations such as UNHCR, NGOs and development partners. • Securing enough time for coordination due to time-consuming processes. • Involvement of IPs in the coordination if IPs provide support for block-farming. • Completion of the contract processes with IPs before starting coordination.
Selection of land	• Sharing a clear picture of the land selection process among the stakeholders. Reviewing refugee settlement maps and land use masterplans, and identifying the candidate sites strategically before starting discussions with landowners. • Consultations with OPM, other stakeholders and candidate landowners identified from the above-mentioned process. Identifying candidate sites by considering the type of land ownership (individual- or family-owned) and willingness of the landowners to lease their land. • Prioritisation of candidate sites through field surveys to measure the area available for clearing and to confirm the conditions of access roads from refugee dwellings, existing vegetation, soil type, and situations of neighbouring HCs. • Negotiation with landowners of the prioritised sites, obtaining their consent, and preparation and signing of land lease MOU. • Consideration for ensuring the landowner benefits (e.g., if there is external support such as training or material distribution, they can benefit from this as well, or a part of the land to be cleared can be reserved for landowners).
Land-clearing	• Ensuring sufficient time for land-clearing, since there are few contractors in the Northern area who handle heavy duty machinery for land-clearing and it takes time to sort out problems such as machinery breakdowns. • For environmental consideration, instructions to contractors to leave bigger trees when clearing land.
Facilities	• Construction of facilities such as wells for potable water, shelters, toilets and storage

Processes	Points for consideration
	to be considered if budget is available.
Selection of beneficiaries and points for consideration	• Establishing a system to promote participation of vulnerable refugees and female-headed households who are often unable to engage in farming at distant farmland due to caring for their children (e.g., mutual assistance through grouping). • Consideration for the proportion of participants from refugee and HC sides (e.g., 50:50, or more refugee participants to improve food security). • Fair and transparent selection processes involving LCs and RWCs with clear selection criteria. • Explanation of detailed arrangements to the participants in advance and confirmation of their consent to reduce drop-out rates.
Distribution of land	• Measures to ensure fairness (e.g., lottery). • Mixing the land of refugees and HC farmers, instead of separating them, to build better relationships.
Support for farming activities	• Distribution of minimum required materials (e.g., seeds). • Guidance regarding farm plan development to increase self-reliance. • Training in cultivation techniques. • Consideration of support for vulnerable groups (e.g., promoting grouping and mutual support).
Conflict resolution / facility operation and maintenance	• Selection of leaders of both the refugee and HC sides to establish a system for conflict resolution and to maintain an environment in which all stakeholders could discuss issues as soon as they arise. • Strong involvement of LCs and RWCs to handle disputes amicably (e.g., damage caused by livestock, theft of crops, etc.). • Establishment of block farm users' associations for relatively large block farms, preparation of by-laws and organisation of sub-committees, such as security, conflict resolution, facility maintenance and management, support for vulnerable groups, sanitation, environment, etc.
Environmental considerations	• Implementing activities to recover the trees removed during land-clearing (e.g., tree-planting around block farms).

The experience of the pilot activities in this Study suggests that paying attention to various detailed considerations would reduce the issues during the opening of block farms and implementation of block-farming. In particular, it is important for the stakeholders to prepare an operation plan with sufficient time to spare, since it takes a lot of time to handle stakeholder coordination, land selection and land-clearing.

In addition, in order to ensure smooth and sustainable management and operation of large-scale block farms, it could be worth considering establishing organisations (e.g., block farm users' associations) and developing a system that enables management and operation with the participation of the target refugees and HCs.

9.3 Production of cotton as a cash crop by refugees and HCs

When access to farmland is partly secured through the establishment of block farms, the cash crop production becomes an important aspect as well as food production. This is because a minimum cash income is necessary to pay school fees for children and to buy daily necessities.

The Survey confirmed that cotton can be a promising crop as a form of income security, since it is resistant to the unstable weather which has become a major issue in recent years, does not require marketing activities by the producers themselves, and is paid by cash immediately after selling. In addition, the crop is not damaged by animals, is easy to dry and store after harvesting, and does not require the initial investment for the necessary materials, such as seeds, thanks to credit arrangements in many cases, which is helpful for refugees with little cash income to grow the crop. Organic cotton cultivation in particular has the advantages of not incurring pesticide costs, since the natural pesticide requires locally available materials and is prepared by the farmers themselves.

On the other hand, it is difficult for refugees to cultivate cotton on a 1-acre site, which is the average cultivation area of one Ugandan conventional cotton farmer since the refugees have limited access to larger farmland. Under the block-farming scheme, it is expected that about 1 acre of land might be allocated. Therefore, taking into account the balance between food production and cash crop production on 1 acre of farmland, a cost-benefit model is presented in the table below for organic cotton cultivation on 0.25 acres (1/4 of the allocated land).

According to this assumption, approximately UGX 200,000 income can be expected. This amount might not be sufficient for a refugee household, but it may become a reliable cash income source for such households.

Table 44: Cost-benefit model of organic cotton production by refugees

Item	Conditions and assumed values
Area cultivated	0.25 acres
Expected harvest	400 kg/acre
Sales price	UGX 2,000/kg
Expected sales	**UGX 200,000**
Production cost (1 sack of seeds)	UGX 3,000
Net income	**UGX 197,000**

On the other hand, if the refugees cultivate organic cotton, it is necessary for them to sign contracts with a ginnery that handles organic cotton, such as GADC. It is also necessary to secure a certain number of producers and production volume in their area, since the ginnery would consider the efficiency of contracting procedures and arrangements of buying cotton. In this respect, it would be easier for the ginnery to deal with the situation if a certain number of producers could be secured within the same block farm. In addition, in many cases, there is no credit support for drums and sprayers for natural pesticide preparation and application. These costs need to be secured as initial investment costs, but the refugees and HCs could procure together and use jointly on block farms to reduce the initial costs.

9.4 Value addition of cotton

This Survey also examined the value addition to cotton but confirmed that it is very difficult to add value to raw cotton at the producer level. Even for organic cotton, the premium is at most 10%, so it is difficult to say that significant value addition is being generated. It also confirmed that even if value addition is promoted at the spinning, weaving and sewing levels, it is very difficult for refugee and HC cotton producers to benefit from it. The most effective way for refugee and HC cotton producers to gain further income from cotton production is to manage the cultivation well and increase the yield. Therefore, rather than support for strengthening the value chain with a focus on processing, training in proper cultivation techniques and quality improvement for producers is more effective for improving producers' incomes.

9.5 Livelihood improvement activities for refugees and HCs

At present, the most important issue for refugees is to produce food, but from a medium- to long-term perspective, how to improve their livelihoods after securing food would also become a very important aspect. Organic cotton cultivation is one such measure. In addition, technical support for other aspects, such as (i) rice cultivation [63], (ii) market-oriented small-scale vegetable production, and (iii) improvement of the quality of life for farmer households[64], are also potential measures. Since these activities are underway in the JICA projects in Northern Uganda, the implementation methods for these

[63] PRiDe has been providing assistance to refugees and HCs to improve their rice production techniques.
[64] The promotion of market-oriented agriculture and improvement of quality of life has been practiced in the Northern Uganda Farmers' Livelihoods Improvement Project (NUFLIP).

activities have already been established and their effectiveness has been confirmed, so utilising them is also considered to be an effective and speedy feasible approach.

9.6 Possible cooperation and available JICA schemes

This section proposes possible cooperation and corresponding JICA schemes for JICA's future support to improve the livelihoods of refugees and HCs through food and cotton production and other activities. Cooperation processes can be divided into two main stages.

Considering the present refugee situations, the critical and urgent issue is land access for food and cash crop production. As the first stage of the cooperation, it is necessary to develop the hard components, such as establishing block farms and constructing necessary facilities, to secure the land access for refugees. Support for block-farming operation can then be provided to ensure that refugees and HCs work together to cultivate food and cash crops. For this first stage, the "Grants in Association with International Organisation" is considered as an appropriate scheme under JICA, since it can support not only the hard components, such as construction, but also the soft components, such as organising farmers' groups and providing technical guidance for agricultural activities. It is necessary to work with international organisations, such as UNHCR and FAO, to formulate the project for establishing block farms and promoting block-farming.

As the second stage, further support for livelihood improvement is considered as a means of realising a more stable life for refugees, once refugees can get access to farmland at a certain level and the current crisis situation can be mitigated. In this second stage, it is assumed that the main approach will be technical assistance for livelihood improvement activities, and therefore the Technical Cooperation Projects can be considered as an appropriate scheme. In Technical Cooperation Projects, various technical guidance will be provided not only for cash crop production but also for household management aspects for refugees and HCs, which include food stock and cash management, nutrition improvement, gender, vulnerable group considerations, and healing trauma. This technical cooperation may contribute to improving the situations of refugee and HC households in a comprehensive manner. It is important to fully utilise the knowledge of the JICA Technical Cooperation Projects for livelihood improvement support currently being implemented in Northern Uganda. The table below shows possible project contents for the future.

Table 45: Possible project contents

Implementation stage	First stage	Second stage
Objective	Improvement of food security and cash crop production	Livelihood improvement through cash crop production and improvement of household management
Implementation timing	Two to three years from the present	After achieving improvement of food security
Possible JICA scheme	Grants in Association with International Organisation[65]	Technical Cooperation Project
Implementing agencies	• Ugandan Government (OPM, Ministry of Gender, Labour and Social Development, MAAIF, District Local Governments, etc.) • Supporting organisations (UNHCR, FAO, etc.)	• Ugandan Government (OPM, MAAIF, District Local Governments, etc.) • Supporting organisations (JICA, FAO, etc.)
Beneficiaries	Refugees and HCs	Refugees and HCs, Agricultural Extension Officers, Community Development Officers, Private company staff
Support contents	• Coordination among stakeholders • Block farm establishment and facility	• Technical support for cash crop production and marketing (e.g., cotton, rice and

[65] The concept note prepared by the study team on this scheme is attached as Annex 4.

	construction • Selection of beneficiaries and land allocation • Support for food production • Promotion of collaboration between refugees and HCs • Formation of management structure for operation and maintenance for block farms • Technical support for cotton production • Inclusion of vulnerable people	vegetables, etc.) • Cash management • Food stock management • Nutrition improvement • Gender consideration • Inclusion of vulnerable people • Healing trauma
Remarks	• While the emphasis will be on food production, cash crops such as cotton will also be cultivated to meet the cash needs of the refugees.	• Regarding livelihood improvement support, the experiences of the JICA Technical Cooperation Projects currently underway in Northern Uganda needs to be fully utilised.

A timeline of five to ten years may seem longer if refugees will eventually return to their home countries. However, it has already been seven years since the influx of refugees to Northern Uganda increased dramatically in 2016, and the number of refugees is still increasing even now. Based on this fact, it is very important to consider strengthening refugee resilience from a medium- to long-term perspective.

Annexes

Report on Workshop with Stakeholders in Yumbe District

Workshop Date: 27 February 2024

At Escape Village Hotel in Yumbe

Data Collection Survey on
Refugees and Host Communities' Livelihood Improvement through Cotton Production Business in Uganda

1. Purpose

1. Sharing the survey results from the JICA consultant team.
2. Sharing the results of pilot activity that the survey team conducted through the subcontractor (Caritas Arua Diocese) in the Bidibidi Refugee Settlement in Yumbe District.
3. Obtaining insights and feedback from the stakeholders who are government officials of Yumbe District and key stakeholders in the Bidibidi Refugee Settlement.

2. Programme

Workshop Programme	Time
■ Opening prayer ■ Self-introduction	15 min
■ Welcome remarks and sharing the purpose of workshop by Mr. Yasuo Ohno, Team Leader of the survey team	5 min
■ Reporting of survey results by Mr. Yasuo Ohno, Team Leader of the survey team (including sharing experience of the pilot activity by Caritas Arua Diocese)	60 min
■ Q&A	15 min
■ Discussion session by all participants	90 min
■ Closing of the workshop	10 min

3. List of participants

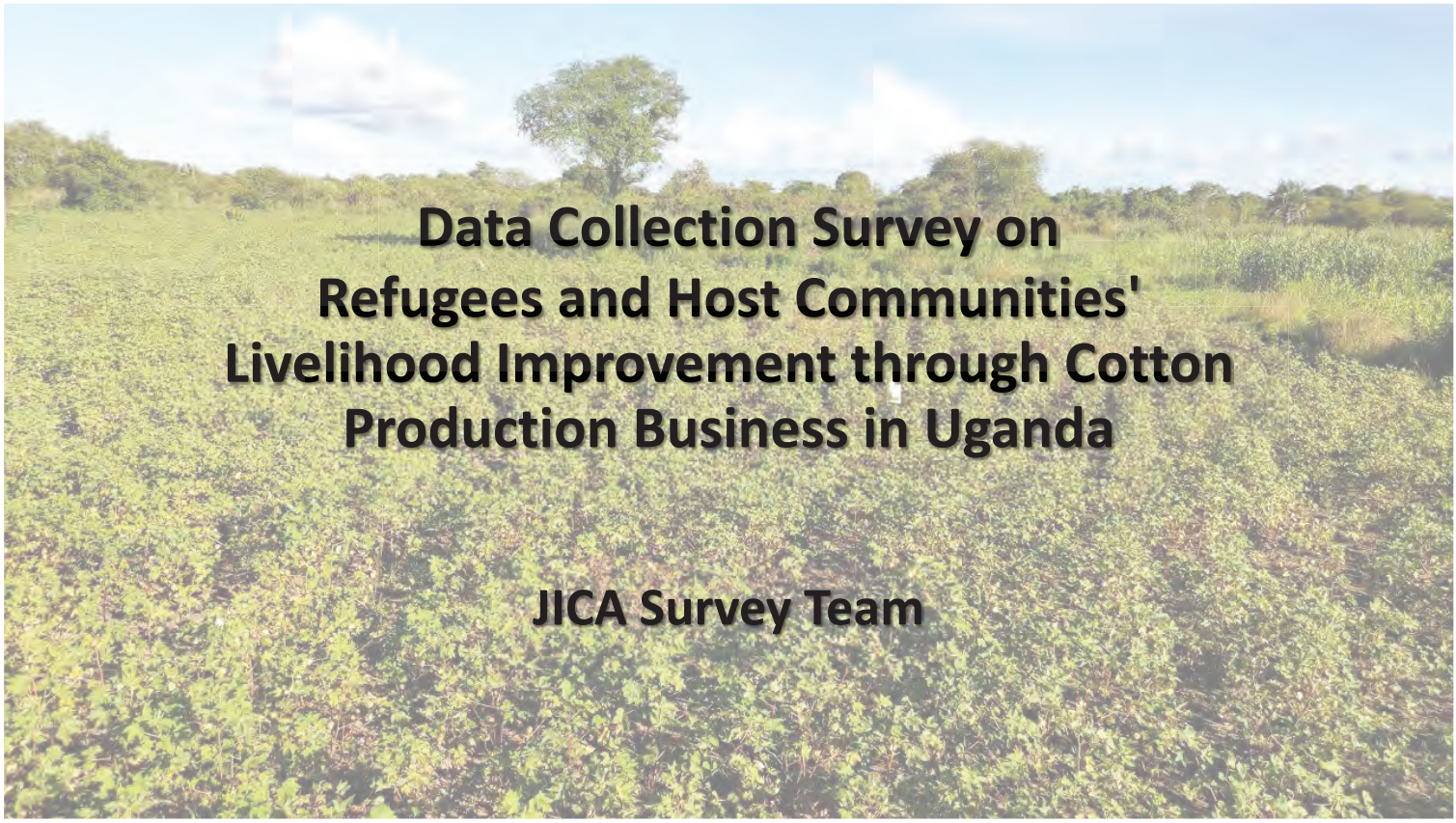
Name	Organisation	Position
Mr. Rashid Kawawa	Yumbe District Production Office	District Production Officer
Mr. Angia Yashin	Yumbe District Production Office	Commodity Officer
Ms. Alioru Betty	Office of the Prime Minister (OPM), Bidibidi Refugee Settlement	Assistant Settlement Commandant (in charge of Zone 1)
Mr. Asio William	Office of the Prime Minister (OPM), Bidibidi Refugee Settlement	Assistant Settlement Commandant (in charge of Sector Working Group of Livelihood)
Mr. Awok'e D. Lakew	UNHCR, Yumbe Field Office	Field Officer
Mr. Ojok Michael	Programme Coordinator	Caritas Arua Diocese (CAD)
Mr. Anguzo Job	Junior Assistant	Caritas Arua Diocese (CAD)
Mr. Taban Yassin	Executive Director	HABS Community Initiative
Mr.Yasuo Ohno	JICA Survey team	Team Leader / Value Chain Analysis
Ms. Nagisa Ishikawa	JICA Survey team	Deputy Team Leader / Socio-Economic Survey 1
Mr. Kosuke Sawada	JICA Survey team	Farming (Cotton Production)
Ms. Fumiko Miyashita	JICA Survey team	Socio-Economic Survey 2
Mr. Yusaku Yoshikawa	JICA Survey team	Business and Marketing

4. Summary of feedbacks from stakeholders

Item	Comments
Measures to improve livelihoods of refugees and HC	
Livelihood improvement measures	***About the survey's response to mixing cash crops (cotton) and food production (maize)*** • It was a good and reasonable arrangement that the food production component was integrated with cotton production when implementing block-farming, as food production has been a critical factor for refugees recently. (Overall) • Agricultural support for refugees is very important because food aid for refugees has been cut in recent years. (UNHCR) • I appreciate that the Survey team prioritised food security for refugees. (OPM) ***About cotton as a cash crop*** • The livelihood strategy for refugees is critical to OPM. It was good that the pilot project included cotton, a cash crop. (UNHCR)
Points to consider when implementing block-farming	• Rather than just caring for block-farming as a means of providing land for cultivation, it is also essential to think about technical support. Without caring for the technical aspects, production efficiency may be impaired, for example, by missing the planting season. (District Production Office) • Currently, the ratio of beneficiaries is 70:30 (HCs to refugees), so it should be noted that HC should benefit more from the livelihood improvement activities. (HUBS)
Implementation aspects of block-farming	
Land acquisition	***Procedures*** • For OPM, it has also been a recent challenge for IPs to negotiate with landowners and secure land directly without involving OPM. Since OPM is mandated to take care of land matters when implementing activities in refugee settlements, the rules should be followed. (OPM) • OPM and the landowner must sign a contract when securing land for activities. In anticipation of this procedure, conducting pre-arrangements and stakeholder meetings several months before actual activity started in the field (i.e., cultivation and sowing seeds) would be desirable. (OPM) ***Considerations for landowners*** • Consideration and support for landowners who provided land is also an issue. (UNHCR) • It is a good idea to involve the landowners in the activities. HC landowners do not expect land to be left idle after being provided for activities benefitting refugees, so the land should be utilised. When IPs implement any activities, landowners should also be benefited. (HUBS)
Land-clearing	• Which is recommended by the Survey team when opening land, either manual or bulldozer(UNHCR) ➢ For the first clearing of virgin land, which is tougher, the Survey team

Item	Comments
	cannot determine whether to use bulldozers or pay cash for work (paying to have land cleared manually) in view of cost and opportunity. Due to time constraints, the Survey selected a bulldozer for land-clearing; however, cash for work can be considered if time allows. It should be noted that even using a bulldozer, clearing land took much longer than expected. (Survey team) • Land-clearing using a machine such as a bulldozer is recommended as it can cultivate more deeply than manual clearing, where stumps are left behind and the land will need to be cultivated again after a few years. (HUBS)
Environment	• Whether the Survey team considered the environmental impact of block-farming. If there is another opportunity to implement it, there should be measures to mitigate the environmental impact. (UNHCR) • It would be good to include some environmental conservation support in the programme. (HUBS) • The local government is divided into the Community Development and Environment & Natural Resources departments, responsible for assessing and planning tree-planting for environmental impact mitigation. It would be best if each department could receive funding. (District Production Office) • Tree-planting will improve soil fertility, which is beneficial for HC. (District Production Office)
Infrastructure, along with block-farming scheme	• For participants from the community, having a borehole is important. Even though irrigation cannot be performed, the community uses it as a potable water source for other income-generating activities. (HUBS) • It is challenging for refugees to access block-farming because of distance and road conditions. Thus, infrastructure such as roads should be improved. (District Production Office)
Programme operation	• Any activities in refugee settlements are to be monitored by and reported to OPM. In the Bidibidi Refugee Settlement, zonal working groups and sector working groups have been established, where activity reporting is to be made by partners. (OPM)
Crop cultivation	• Although it does not have a long implementation history, in block-farming, managing continuous cultivation on the same land could be a challenge. For example, from a technical viewpoint, measures such as crop rotation and establishing fallow areas could be considered. The Survey team would want to learn from IPs and UNHCR regarding practical ideas on this matter. (Survey team)

5. Attachment (Presentation)



Data Collection Survey on Refugees and Host Communities' Livelihood Improvement through Cotton Production Business in Uganda

JICA Survey Team

Contents

Background

- JICA has conducted two surveys on cotton production in Uganda and identified the potential of the cotton industry in Uganda
- Through these surveys, it was demonstrated that both refugees and Host Community (HC) residents form part of value chain in the cotton industry as cotton producers
- Cotton production has a potential to contribute to the livelihood improvement of the refugees and HCs

Survey framework

Objective

- Identify the present conditions and challenges of both refugees and small-scale farmers from HCs in the West Nile and Acholi Sub-regions
- Survey on cotton production and cotton value chain in Uganda
- Conduct a pilot activity (group cotton and food production by HC farmers and refugees) and clarify the advantages and challenges on those

Work schedule and deliverables

- Field surveys (interviews and data collection): from July 2023 to February 2024
- Reporting to stakeholders: from February to March 2024 (Yumbe and Kampala)
- Final report: June 2024

Present conditions of refugees and host communities

- The survey team interviewed stakeholders, refugees and HCs
- To understand the precise and real conditions of refugees and HCs, including livelihood improvement means, more than 100* individuals were interviewed *cumulative total

Interview targets:

Organisations: OPM field offices (Refugee Desk Officer, Settlement Commandants), DLGs, UNHCR, WFP, NGOs
Refugees: Female-headed, male-headed and child-headed households, elderly and disabled people, Refugee Welfare Committees (RWCs)
HCs: HC residents around refugee settlements and LCs

Refugees' Common Challenges:

- Difficulties in managing life with available resources due to limited cash, land for cultivation and food
- Continuous insecurity in South Sudan and unable to go back (waiting for peace to be back)

Changes in surrounding environment of refugees:

Due to limited budget, the food ration has been decreasing

"Foods do not last one month."

- Refugees were encouraged to be self-sustainable
- Anytime, additional food cuts can happen

Means of obtaining additional food and cash (apart from food ration)

- Major agricultural activities to gain food for home consumption and sales

Type	Land Size	Location	Challenge
Kitchen garden	Small	Household plot (30×30M)	• Size is quite small for food production
Renting	0.25～1acre	HC's land	• Renting fee • Distance • Competition
Group activities (i.e. NGO, Block Farming)	Large acres but sharing by a group (1～2acres)	HC's land	• Limited opportunity to join the activity • Far distance

- Work for other people's garden
- Small business for gaining petty cash or involved in non-agricultural activities (i.e. sand collection, casual labour)

Land is quite an important factor considering the current environment of refugees

HC's situation

- The living environment of HC residents is also changing after receiving refugees

  (i.e. improved access to different services like education and health services, development of infrastructure like school, hospital, road and water)

- Common situations of interviewed HC members (adults) were:

  ➢Even though they own a large land as a resource, they have remained unused (bush)

  ➢Living standards are not that high

  ➢Educational level is not that high

Cotton production in West Nile and Acholi Sub-regions

Advantages and Disadvantages of Cotton for farmers

Advantages	Disadvantages
✓ Seeds can be obtained on credit	× 2-4 times weeding required
✓ Wide adaptability to soil types	× Relatively much insect damage
✓ Management is not difficult	× Sales channels are limited
✓ Relatively tolerant to unfavorable weather changes	× Cannot be consumed as food
✓ No animal damage	
✓ Harvested products are not perishable	
✓ Reliably converts into cash (no loss as food)	
✓ Marketing efforts and costs are not required	

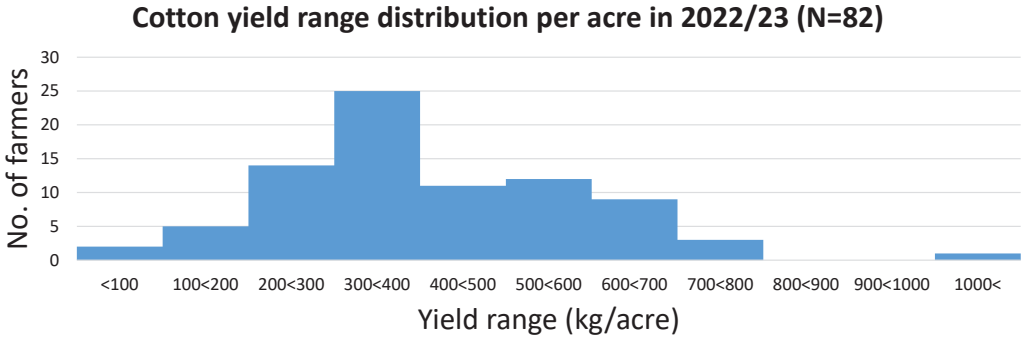
Cotton production in West Nile and Acholi Sub-regions (cont.)

Conditions of cotton production in West Nile and Acholi Sub-regions

- **The soil is basically suitable for cotton cultivation**

  Soil texture and pH are suitable, cations (K, Ca, and Mg) are abundant though nitrogen and phosphorus are low

- **Yield is around 350-400kg**



Cotton production in West Nile and Acholi Sub-regions - Organic cotton – (cont.)

Features of organic cotton production

- **Cost saving on pesticides**
  Utilise homemade pesticides instead of commercial ones
- **Premium pricing compared to conventional cotton**
  A premium of 100 shillings per kilogram is added, in the case of GADC
- **Higher average yields compared to conventional methods**
  Seed cotton yield in 2023 (data obtained from interviews)
  Conventional farming **367.7kg (N=64)**
  Organic farming **465.8kg (N=21)**

Cotton production in West Nile and Acholi Sub-regions - Organic cotton – (cont.)

Why organic cotton yields higher than conventional cotton?

- **Organic farmers manage their field and crop more carefully**
  Organic farmers said “Cottons need incentive management”
  Conventional farmers said “Cottons are extensive crop”
- **Well-manageable field size**
  Average field size (data obtained from interviews)
  Conventional farming **1.79 acre/farmer (N=64)**
  Organic farming **1.29 acre/farmer (N=21)**

Cotton production in West Nile and Acholi Sub-regions (cont.)

Possibility of adopting cotton production for refugees to improve their livelihood

- **Cotton can be income security crop for refugees**
  Numerous advantages as a cash crop
- **Organic cotton production has some advantages**
  Due to higher yields expectation even in small size field and less input costs

Advantages
✓ Seeds can be obtained on credit.
✓ Wide adaptability to soil types.
✓ Management is not difficult
✓ Relatively tolerant to unfavorable weather changes.
✓ No animal damage.
✓ Harvested products are not perishable.
✓ Reliably converts into cash (no loss as food).
✓ Marketing efforts and costs are not required

Assumptions:	Field size	0.25 acre
	Yield	450 kg/acre
	Unit price	UGX 1,700/kg
	Income	**UGX 191,250**
	Cost (Seeds)	3,000 shs

Cotton production in West Nile and Acholi Sub-regions (cont.)

Considerations of cotton production by refugees

- **Land access for farming**
  Accessing land for farming is one of the most challenging aspects for refugees
- **Balance between food and cash production**
  Refugees need to learn how to prepare a farm plan that balances food and cash crop production effectively, given limited land resources
- **Connection with cotton buyers**
  Cotton farmers should have connection with buyers, middlemen and ginneries, since cotton sales channels are limited (cannot sell to ordinary markets)

Pilot Activity (cont.)

Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
• Land opening • Sowing • Thinning & Gap filling	• Organic pesticide making • Weeding • Tipping • Registration to GADC		• Weeding • Spraying • Mid-term survey	• Harvesting • Selling to GADC • Final survey (Feb.)	

Land opening

Cotton field (28th Sep.)

Cotton seeds

Group sowing

Organic pesticides making

Pilot Activity (cont.)

Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
• Land opening • Sowing • Thinning & Gap filling	• Organic pesticide making • Weeding • Tipping • Registration to GADC		• Weeding • Spraying • Mid-term survey	• Harvesting • Selling to GADC • Final survey (Feb.)	

Mid-term survey

Cotton field (15th Dec.)

Cotton stainers

Group members

Selling to GADC

Pilot Activity (cont.)

- Out of 40 members, **33 (14 refugees and 19 HCs) completed** the activity. The dropouts left the group due to individual reasons e.g., sickness
- Non-dropout **members harvested 29kgs and acquired approximately UGX49,000** on average through the sales to GADC. The selling price was **UGX 1,700/kg**
- Farmers generally expressed **satisfaction with pilot activities**. A combination of cash and food crops and free land access are highly appreciated
- Farmers are **generally positive on cotton production** mainly because it brings **cash on-hand at once** and can be kept safely in the field
- Refugees and HC farmers **are well collaborated** during the cultivation (e.g., group sowing). The pilot offered **an opportunity to get to know each other** among members
- Challenges on cotton production in the pilot activity are land opening, late sowing, small plot size (0.15 acre per person), pests (e.g., cotton strainers), and uneven land conditions among plots (e.g., water logging, soil fertility)

Pilot Activity (cont.)

Challenges

Category	Challenges	Countermeasures
Preparation	• Delay in the land opening led to the late sowing and small cotton plot size (0.15 acre/person)	• Early planning and securing sufficient time for preparation
	• Limited time to discuss with landlords	
Cultivation	• Long distance to the field for refugees (especially hard for those with children and physical weakness)	• Discussion with members to identify the support
	• Plot conditions, such as drainage and soil conditions, are different	• Excluding low-quality plots in advance
	• Wild animals & thefts	• Setting up security committee
	• Dropouts and low-attendance of few group members	• Dialogue with individuals by Implementing Partner (IP)
	• Pests (e.g., cotton stainers) and bad field conditions	• Weeding and using organic pesticides

Pilot Activity (cont.)

Points to be considered on Block Farming

- Land opening ensures farmers instant land access that is highly valuable
- Necessary steps need to be secured during land acquisition processes and core stakeholders (Landlord, OPM, UNHCR, DLG, IPs) need to be involved
- A wider range of people (e.g., women with small children) need to be involved with special considerations
- Early planning and informed consent encourage farmers (e.g., providing necessary input like drums and sprayers, dialogue with individual members)
- Close coordination among stakeholders (e.g., the survey team, Caritas, farmers) contributed to solving challenges on the ground

Lessons learnt

Refugees

- The food ration has been decreasing and this trend might continue due to the budget shortage. There is a high demand of land to produce food by refugees themselves and obtain cash income by selling the products.
- Within the refugee settlement, refugees are facing limited land access. To improve the situation, more farmland needs to be opened settlement surrounding areas (e.g., Block Farm).

Lessons learnt (cont.)

Block Farming

- Corresponding to the high demand of accessible farmland for the refugees, Block Farm (BF) development is one of the important measures.
- It is important to produce food and cash crops simultaneously to fulfil the food needs and cash demands in the refugee households.
- Working with refugees and HC farmers at BF could develop good relationship among them. This relationship might realise more opportunities of land access for the refugees.

Lessons learnt (cont.)

Block Farming (cont.)

- Land acquisition processes need to be materialised through various consultations with core stakeholders (e.g., Landlords, OPM, UNHCR, DLG, IPs). It is time consuming processes; thus, the preparation has to start early enough.
- There are some crucial points to be considered when stakeholders establish BF and implement Block Farming (e.g., distance, drinking water source, toilet, shelter, working conditions for women with small children, access roads).
- Landlord benefit need to be considered at certain level to motivate the landlords (e.g., becoming a part of project beneficiaries).
- Environmental aspects need to be considered when large areas are opened as BFs (e.g., Remaining big trees and tree planting).

Lessons learnt (cont.)

Cotton production

- Through interviews and field surveys, the team identified that cotton has some advantages compared to other cash crops (e.g., sell at once with immediate cash, no marketing activities by individual farmers, not perishable and easy to store, grow relatively easy, and relatively tolerant to unstable weather).
- Organic cotton production has more advantages compared to conventional cotton production for refugees (e.g., low cost, more yield due to intensive management, better price, high demand in international markets).

Thank you for your attention!

Reports by subcontractor of pilot activity under the survey

(Prepared by Caritas Arua Diocese)

Activity Work Plan

Mid Term Project Report

End of Project Report

Exit Meeting Report

Activity work plan-Cotton pilot

	Activity	Timing	Responsibility
1	Bull dosing/ Bush clearing	19-21/07/2023	Service Provider (Dozer operators)
2	Stakeholder engagement meetings (meetings with YDLG, OPM, LC3/RWC3)	20-21/07/2023	JIN and CAD mgt
3	1st Community Sensitization meeting (Sensitization and farmers selection)	20/07/2023	CAD
4	2nd Community sensitization meeting (Planning meeting with selected farmers)	21/07/2023	JIN and CAD
5	Measurement of plots	22/07/2023	JIN and CAD
6	Allocation of plots to farmers	24/07/2023	CAD
7	Tree stem/Stump collection	25/07/2023	Farmers
8	1st ploughing/Primary tillage	26-28/07/23	Service providers (Tractor operators)
9	Sowing/planting cotton seeds	05/07/2023, 29/07/2023	GADC

CAD= Caritas Arua Diocese

JICA= Japanese International Cooperation Agency

GADC= Gulu Agricultural Development Company

YDLG= Yumbe district local government

LC3= Local Council 3

RWC3= Refugee welfare council 3

Note:

- There is need for Caritas Arua to procure metre rule (tape measure, Strings make pegs with farmers.
- Refugee farmers need to be mixed up with Host community farmers.

Compiled by Nyakuni Gift-CAD

Annex: 2

Caritas Arua

MID TERM PROJECT REPORT

PROJECT NAME	**LOGISTICAL AND TECHNICAL ASSISTANCE FOR THE DATA COLLECTION SURVEY ON REFUGEES AND HOST COMMUNITIES' LIVELIHOOD IMPROVEMENT THROUGH COTTON PRODUCTION BUSINESS IN UGANDA**
PROJECT PERIOD	17th /07/2023 – 30th/4/2024
FUNDERS	JIN Corporation
SUBMITTED BY	Ojok Michael Team leader
REPORTING DATE	04/10/2023
BACKGROUND	Caritas Arua Diocese (CAD) was contracted by JIN Corporation to provide consultancy service in a pilot project titled **"Logistical and Technical Assistance for the Data Collection Survey on Refugees and Host Communities' Improvement through Cotton Production Business in Uganda "** implemented in zone 1 of Bidibidi settlement. The survey aims to seek knowledge and understanding on the possibillities to improve livelihoods of refugees and host community residents through participation in the cotton industry. Thus the survey objectives are twofolds namely; - To identify the actions and points to be considered for the development of the cotton industry in Northern Uganda which involve both refugees and HC residents. - To identify measures to improve the competitiveness of the cotton industry (including the potential for future JICA projects).
SUMMARY OF PLANNED ACTIVITIES FOR THE PERIOD ACCORDING TO THE GANTT CHART	• Coordination with stakeholders in the settlement • Organizing a farmer group • Select the farmland for the farming group • Implement land opening for the farmers • Support coordination between farmers and GADC • Monitoring of the activities. • Interpretation for the cotton survey team

Caritas Arua

ACHIEVEMENTS

(i) Coordination with stakeholders in the settlement:

CAD conducted stakeholder identification and mapping at the onset of implementation. The key stakeholders identified and mapped for coordination within the settlements include; Office of the Prime Minister (OPM), local leaders (Refugee welfare council and Local council for refugees and Host community respectively), UNHCR, landlords, and Implementing partners for the livelihood sectors under their umbrella of livelihood and energy sector working group (LESWG).

CAD works closely and through some of these stakeholders hence these key stakeholders are well informed about the cotton survey project. CAD attends the monthly livelihood and energy sector working group meetings at the settlements. Regular updates about the project are shared during these meetings.

Also through platforms such the LESWG WhatsApp group, CAD maintains regular contacts with some of the key stakeholders.

(ii) Organizing a farmer group.

40 beneficiaries have been identified and registered (20 from refugees and 20 from HC) into a farming group. From the host community, there are 14 males and 6 females while among the refugees there 14 males and 6 females.

Mobilization was conducted through local/refugee welfare council leaders with a communication campaign to target the following beneficiary's categories; women, youth, men and other groups in farming activities. Caritas carried out a community campaign in zones 1 village 3 in refugee settlement and Jemu village in the host through community awareness meetings to sensitize the communities about the goal, targets, objectives, outputs and outcomes, duration as well as implementation arrangements during the beneficiaries selection process and group formation.

The group leaders have been identified and selected by the group members.

The farming group is actively participating in production of cotton and maize in the block farm.

Location	Refugee			Host		Total
	Male	Female	Total	Male	Female	
Village 3	14	06	20	0	0	0
Village Jemu	0	0	0	14	06	20
Total	14	06	20	14	06	20

(iii) Select the farmland for the farming group:

Through consultative meetings with landlords, local council leader; 40 acres of arable land has been identified and selected for group farming in Jemu village,

Legu parish, in Romogi sub county. The 40 acres has been demarcated and mapped out using GPS.

The signing of the user right agreement between the landlords and OPM (mandated to spearhead land acquisition on behalf of partners) is in progress. Discussion between the parties (OPM & landlords) has been initiated.

(iv) Implement land opening for the farmers:

The bush clearing and ploughing of the 40 acres was accomplished. The land is under cultivation for cotton and maize; approximately 7 acres for cotton and 33 acres for maize.

Worthwhile to mention, the bush clearing presented much challenge and a great deal of learning points for CAD due to; under quoting of the works and poor assessment of the scope of work by the service provider. Consequently the delay caused by the contractor had knock on effect on the later activities that CAD was to implement.

The ploughing however was carried out smoothly without much delays or challenges.

(v) Support coordination between farmers and GADC:

CAD worked closely with GADC to implement a number of trainings for the farmers from the sowing of the cotton seeds up to the present stage of pest and disease control. CAD provided some of the training materials.

Cotton seeds were sown from 8/8/2023-10/8/2023 with technical guidance from GADC. GADC field staff demonstrated sowing of cotton seeds to farmers and followed on how the farmers were planting. Planting was done by all 40 farmers as a group. Land was sub divided into cotton plots measuring 30mx20m i.e. (600 square metres). Each farmer was allocated a plot (600 square metres) of cotton field to work on. Germination rate was observed to be generally good estimated to be 85%. Thining and gapfilling was conducted by GADC on 19/8/2023 with support from CAD field team. The purpose of thinning and gap filling cotton was to ensure the required plant population in the farmers plots for better future yields.

CAD also supported GADC to register the farmers for organic cotton production using forms provided by GADC. All the 40 beneficiaries have been registered.

(vi) Monitoring of the activities.

CAD intently monitored the following activities during this initial phase of the project; land opening (bush clearing & ploughing), planting, weeding of the block farms.

Contrary to the initial plan to monitor the activities once every two weeks, the work demanded presence of CAD field officers in the field to visit the farming group at least 5 times in a week in order to ensure the work progresses.

	The implication of the increased number of field visits for CAD field officers in this initial phase is likely to affect planned visits in the later part of this project and thus require a budgetary amendments. Additionally, CAD management also provided regular support visits to the field operations at the block farms. **(vii) Interpretation for the cotton survey team**; CAD provided 2 translators (one female and one male) to support the survey team in data collection.
CHALLENGES AND PROPOSE SOLUTIONS	• The pilot study project activities generally started late and with many unanticipated field challenges significantly hindered timely implementation of the activities. • The bush clearing took longer than planned time frame due to under quoting of the works by the service provider, poor assessment of the scope of work, and mismatched capacity of the bulldozer that kept breaking down. • The second season appears to be nearing its end and this follows that the rainfall will continue to reduce in amount as we approach the drier months November and December of the year 2023. This will surely have an influence on our project especially maize. • The stray animals in the surrounding villages occasionally break lose and cause destruction to the crop fields most especially Maize • Farmer absentism on peak periods of key activities delays and retards progress in implementation.
LESSONS LEARNT	• Cotton growing season has a narrow window (roughly one month of July) for planting, if successful production is to be realized at the end of the season. This therefore calls for early roll out of the preliminary activities such as farmer mobilization, land aquisiation and opening, planting etc.Timely Project implementation needs early planning and decision making. • It is very important to be dynamic and innovative in project implementation in order to manage change. • Farmers are willing to continue growing cotton even after the pilot study but are unsure of the future market opportunities especially when JIN corporation will not be there. • The decision to pick the service provider for the bush clearing was based on price, the lowest bidder, who didn't have sufficient capacity to accomlpish the task at hand. For future ventures other criteria should be put into consideration such as capacity, reputation, experience, etc. plus the process was done in a rush in order to catch up with the cotton growing season which at that moment was already advanced.
PLAN FOR NEXT PHASE	• Conduct technical backstopping to farmers on; weed management, crop protection (pest & disease control), post harvest handling etc. • Coordination with GADC, and other key stakeholders • Signing of land user agreement between OPM and the lanlords. • Management visit/support to the beneficiaries and key stakeholders.

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END OF PROJECT REPORT

PROJECT TITLE	LOGISTICAL AND TECHNICAL ASSISTANCE FOR THE DATA COLLECTION SURVEY ON REFUGEES AND HOST COMMUNITIES' LIVELIHOODS IMPROVEMENT THROUGH COTTON PRODUCTION BUSINESS IN UGANDA

PREPARED BY	NYAKUNI GIFT (SENIOR ASSISTANT)
REVIEWED BY	OJOK MICHAEL (TEAM LEADER)
DATE OF SUBMISSION	26/2/2024
SUBMITTED TO	JIN CORPORATION
IMPLEMENTATION PERIOD	1st July 2023 to 29th February 2024
BUDGET	UGX 124,273,160

Introduction and purpose of the report.

This is the final report for the implementation of the 7-month pilot study project, it provides an account of the activities' progress, achievements, challenges, lessons learned, and recommendations.

The project was implemented by Caritas Arua Diocese (CAD), a department of the Catholic Diocese of Arua mandated to provide social services and support economic development within the Diocese. CAD has served for 38 years with a focus on the following core areas; livelihoods & food security, environment and energy, and peace-building.

Background of the pilot study project

Caritas Arua secured funds from JICA/JIN Corporation to implement a pilot study project titled **'Logistical and Technical Assistance for the Data Collection Survey on Refugees and Host Communities' Livelihoods Improvement through Cotton Production Business in Uganda''** in Zone 1 of Bidibidi refugee settlement, Yumbe district. Working closely with the JIN Corporation team, Caritas Arua Diocese implemented this project effective July of 2023 till February 2024.
The pilot study had two major components; Data collection on the farming groups on one part and the other part involved mobilization of farming groups for the production of cotton that were implemented concurrently by JIN Corporation and Caritas Arua Diocese.

The overall objective of this pilot study was to examine the dynamics and possibilities of group farming as a means to improve livelihoods for refugees and host residents through piloting cotton production.
The targeted beneficiaries were vulnerable refugees and host community households with specific attention to households that are; female-headed, child-headed, elderly, and disabled people. In total 40 farmers were on-boarded and clustered into two groups; one for refugees and one for hosts. Each group comprised of 20 members.

Not underscoring household food security through diverting family labor and other resources to produce nonfood crops, the pilot study also integrated and supported the farmers in cultivating maize crops alongside cotton the principal crop under investigation for its potential to improve the livelihood of refugees & hosts.
Cotton is a traditional cash crop grown in Uganda, third in export value after coffee and tea. The production is majorly by an estimated 250,000 smallholder farmers cultivating farm sizes of less than 0.5 hectares[1]. For this project, 40 small farming households were mobilized for cotton production in a 40-acre block farm, which had 7.5 acres and 32.5 acres planted with cotton and maize respectively.

Below is a detailed account of the key activities of the pilot study implemented and their outcome during the phase;

[1] Baffes, J. (2009). The Full Potential of Uganda's Cotton Industry. Development Policy Review, 27 (1), pp. 67-85

Closely coordinate with stakeholders in the settlement (e.g. landowners, and GADC) to smoothly implement the group farming.

At the onset of the project, the CAD team conducted a stakeholder mapping to identify who the key stakeholders were and what could be their interests and expectations concerning the project. The mapping exercise identified the following stakeholders; Office of the Prime Minister (OPM), UNHCR, Yumbe District Local Government, Local Council Representatives for Hosts and Refugees, Land Owners, and Romogi Sub-County. A communication plan was designed to reach out to each stakeholder category and sensitization meetings were held accordingly. Also, the team carried out courtesy visits to some of the key offices of stakeholders operating within the settlement. As a result, the project garnered support and ownership of the project outcomes and deliverables from the stakeholders.

In a nutshell, throughout the implementation period, the team coordinated well with the various stakeholders ensuring smooth implementation of the group farming activities as well as the data collection.

Key dates for coordination;

- 20th July 2023 mapped the major stakeholders and developed a communication plan.
- 20th -21st July 2023 stakeholder engagement meetings with YDLG, OPM, UNHCR, LCs/Rwcs.
- 8th, 9th & 10th August 2023 coordinated with GADC for sowing of cotton on the 7.5 acres.
- 13th September 2023 meeting with JIN Corporation team members online.
- 21st September 2023 meeting of the landlord with JIN Corporation and CAD team
- 28th September 2023 registration of the organic cotton farmers with GADC and training on crop protection from pests and diseases.
- 19th October 2023 coordinated with GADC for training on tipping, field inspection, and inspection of organic cotton fields for compliance.
- 6th November 2023 second training by GADC on pesticide application and compliance supervision of organic farmers.
- 2nd week of November 2023, coordinated field monitoring by a Japanese expert.
- 20th November 2023 coordinated with GADC, JIN Corporation to train farmers on post-harvest handling of cotton.
- 11th December 2023 coordinated a visit to the block farm of a Japanese delegation and UNHCR.
- 25th January 2024 coordination meeting for the livelihood and environment sector at the Bidibidi settlement level.
- 31st January 2024 online meeting between CAD and JIN Corporation team.
- 13th -16th February 2024 coordinated with the JIN corporation team during the last phase for farmers interviews
- 27th February 2024 meeting to disseminate survey findings to stakeholders.

Organize a Group with the Refugees and Host Community for Group Farming

Working closely with the local leaders from both the refugees and the hosts, the CAD team mobilized individual farmers to constitute the farming groups. Community-level meetings were held with the local leaders, and the general community to communicate beneficiary

selection criteria[2], project objectives, and the deliverables in Village 3, Zone 1, and Jemu village for the refugees, and for the host community respectively. The shared information during mobilization meetings informed the targeted community members' decisions on whether to participate or not.
The mobilization exercise's outcome was identifying and selecting the 40 farmers through a participatory and transparent process. The selected farmers were then clustered into two farming groups namely; one for the refugees and the second for the hosts. Each group category (refugees & hosts) consisted of 20 beneficiaries.

Location	**Refugee**			**Host**		**Total**
	Male	**Female**	**Total**	**Male**	**Female**	
Village 3	14	06	**20**	0	0	**0**
Village Jemu	0	0	**0**	14	06	**20**
Total	**14**	**06**	**20**	**14**	**06**	**20**

Key dates

- 20th July 2023 Sensitization and selection of farmers from the refugee population.
- 21st July 2023 sensitization and selection of the farmers from the host community.

Select the Farmland and allocate it to the Target Group

Procedurally, all partners engaged in the refugee response program acquire land through the Office of the Prime Minister which secures land through negotiations with the landlords. The landlords in most cases voluntarily offer their land when approached by OPM.

Through a recommendation by a landlord who was already working with OPM in Zone 3, the team secured land in Jemu village, Romogi Sub County. The landlord, Mr. Waiga voluntarily offered 80 acres for the project. However, due to financial constraints, only 40 out of the 80 acres were mapped with GPS, bush cleared, plowed, and then subdivided into plots of 1 acre. The plots were then distributed to the 40 farmers for cultivating cotton and maize through a randomized process of lottery picking; the process involved assigning the individual sub-divided plots numbers running from 1 to 40, then these corresponding plot numbers were written on small pieces of paper, folded, and mixed up. Each farmer was called in turn to pick a folded paper. The number on that piece of paper represented the plot allocated to the farmer.

Key dates

- 10th -15th July 2023 identification of the farm land with the landlords in Zone 3 and Zone 1. This included meetings & negotiations with the landlords, OPM, and District officials.
- 12th -13th August 2023 allocation of the 7.5 acres of planted cotton field to the 40 farmers.

[2] Willing farmers that included women, men, and youth from households that are; women-headed, child-headed, elderly, and disabled person from the refugees and host community.

- 20th -25th September 2023 allocation of the 32.5 acres of planted maize field to the farmers
- 13th -20th September planting of maize on the 32.5 acres.

Implement land opening of the targeted farmland

The land opening was achieved through mechanization; CAD contracted service providers that implemented initial bush clearing with bulldozers and then final plowing with tractors. In total 40 acres were opened and cultivated with cotton and maize during this phase of the pilot study project.

Worthwhile to mention here is that working with mechanized service providers for land opening presented the team a steep learning curve, the agreed period to complete the initial bush clearing exceeded by many weeks. This was so due to unforeseen challenges encountered in the field such as machine breakdown, low capacity of the machines to uproot the many tree stamps, etc. Ultimately, we succeeded in opening only 7.5 acres out of the 20 acres planned for cotton within the permitted planting window. Consequently, 7.5 acres of cotton were planted in the pilot study phase. This decision was reached in consultation with the partners, JIN Corporation and GADC. Much as all the 40 acres were opened later, it was assessed that planting cotton beyond the window period risked total crop failure. The remaining 32.5 acres were instead used to cultivate maize that was still in season.

Key dates

- 26th July 2023 contracting of service provider for bush clearing.
- 27th-31st July 2023 contractor mobilizing and deploying the bulldozer.
- 31st July contracting service provider for plowing with tractors.
- 1st -5th August 2023 actual bush clearing for the 7.5 acres.
- 6th August 2023 plowing of the field (7.5 acres)
- 25th August 2023 contracted the second service provider through JIN for bush clearing of 20 acres.
- 20th August -5th September supervising the first contractor to complete the 12.5 acres.
- 10th -13th September 2023 plowing of the 32.5 acres by the tractor service provider

Support coordination between target farmer groups and GADC

Right from when the farmer groups were formed, the CAD team supported their coordination with GADC. As a result, GADC was able to conduct successfully the following activities with the farming groups;

- Registered and certified the farmers as organic cotton producers. GADC provided CAD team registration forms that were used to capture the particulars of the farmers. All the 40 farmers' particulars have been captured and stored in a database. The list of organic cotton farmers was shared with OPM and UNHCR. (6th November 2023)
- Trained the farmers on planting cotton covering topics on sowing, thinning, gap-filling, and tipping. Subsequently, the farmers implemented their new skills and knowledge on individual cotton plots measuring 30mx20m; the dates for sowing were 8th, 9th, and 10th August 2023, largely the germination rate was high, 85%. Thinning & gap filling was done on 19th /8/2023.
- Trained on crop protection; GADC with support from JICA/JIN Corporation and CAD field staff, conducted training on organic pesticide making and application. JIN Corporation procured the following training materials; 240-liter plastic drums, knives,

strainers, Knapsack sprayer pumps, and Saucepans. Other materials such as tree leaves i.e. pawpaw, Cassia, Neem leaves, rabbit urine, and Chili plus other herbs were locally sourced. The farmers used the pesticide to spray cotton and maize in the fields against cotton aphids, ball worms, lygus, cotton stainers, fall armyworms, etc.(first training on 28th September 2023 & second training on 6th November 2023)

- Other training such as post-harvest handling (PHH) practices was also conducted by GADC to educate the farmers on best practices of PHH. GADC also provided the farmers with harvesting bags and hessian clothes for carrying cotton from the fields to the stores. (1st week of December 2023)
- Harvesting and sale of cotton; GADC rented a store in the community that served as a bulking point for the farmers. Cotton picking took place in January 2024, and the store was very helpful to the farmers. At the stores, the storekeeper weighed and recorded all the harvest brought in by each farmer. Cotton was bought by GADC at UGX 1800 per kilogram, the total production of cotton for this pilot study phase was 1,146 kg which earned the farmers a total income of UGX 2,062,800 from the sale of the cotton.

Key dates

- 11th December 2023-27th February 2024 harvesting of cotton.
- 18th January 2024 selling and buying cotton, first round.
- 27th February 2024 Selling and buying cotton, second round.

Besides supporting coordination between the farmers and GADC, the CAD team also coordinated with other stakeholders such as OPM, UNHCR, and the livelihoods working group. The team attended regularly the zonal and periodic inter-agency coordination meetings during which updates about the pilot study project were shared.
Also, CAD coordinated closely with the donor, JIN Corporation through meetings, phone calls, WhatsApp, and emails providing regular updates on implementation progress.

Conduct monitoring of the cotton activities by the target farmer groups

A robust monitoring schedule was developed and implemented by the CAD team. The farmers were visited and guided at least 3 times each week by senior CAD agriculture staff while also maintaining a constant on-the-ground presence through the community-based extension workers identified from/among the community. The guidance included; cotton sowing, gap filling, weeding, tipping, pesticide making, and application. Furthermore, CAD management also undertook monitoring through field visits and engagement of local authorities.

Also through these monitoring visits, emerging issues were identified, and addressed. For instance pest and disease outbreaks, floods, dry spells, crop destruction by animals, and poor attitude of some farmers towards work in their fields.

Key dates

- Daily (Monday –Friday) for the period July to October 2023
- 3 times a week from November 2023 to February 2024.

Provide interpretation for the survey team

The data collection component of this pilot study was implemented by the JIN Corporation team. CAD however supported their work through identification and making available interpreters to work alongside the survey team.

Key dates

- 13th July -17th July 2023 provided translation service for the JIN corporation team.
- 28th -30th November 2023 provided translation service for JIN corporation team member (Yusaku San).
- 13th -16th February 2024 provided translation service for the JIN corporation team.

Challenges

- The pilot study project activities generally started late and many unanticipated field challenges significantly hindered the timely implementation of some activities for instance timely planting of cotton.
- Stray animals in the surrounding villages occasionally broke loose and destroyed the crop fields most especially Maize
- Farmers' absenteeism during peak & critical periods of key activities delayed and retarded implementation. For instance, 6 farmers were perennially absent from their plot work, these were consequently discontinued and their plots were reassigned to other willing farmers from the groups that were more committed and hard-working.

#	Famers discontinued	Plots were reassigned to
1	Apio Joyce	Ayikoru Sabina
2	Taban Bernard	Ijosiga Jamal
3	Bojo Robert	Mawumawu Siraji
4	Wani Henry Peter	Dudu Adumisa
5	Ajiga Swali	Kumi kennedy
6	Walakaja Allan	Doka Salim

- Pest attack- Incidences of Cotton stainer, and fall armyworm were observed in the field affecting both crops.
- There was a considerable loss of white cotton in the field due to farmers' negligence in not performing some activities timely i.e. spraying and picking.
- Observation showed that there were incidences of slow adoption of knowledge and skills by some farmers.

Lessons learned

- Timely project implementation needs early planning and decision-making.
- It is very important to be dynamic and innovative in project implementation to manage change.
- Farmers are willing to continue growing cotton even after the pilot study but are unsure of the future market opportunities especially when JIN Corporation will not be there.
- Food ration cuts by WFP based on the needs prioritization policy; Category 3 (self-sufficient) gets no food at all, Category 2 (moderately) gets 30%, and Category

1(extremely vulnerable) gets 60%. Consequently, many refugee families are struggling to survive, and hence the demand for land for food cultivation as an alternative livelihood is very high.

- Averagely the income per farmer from the sale of cotton was UGX 51,570 from the less than 0.25 acre planted. Indicating the potential of cotton to provide farming households with a decent income.

Recommendation & Conclusion

The implementation of this study pilot project commenced late, in the middle of July 2023, as such there was a great deal of rush to catch up with the ongoing cotton planting season. Through the dedicated hard work of the CAD team, a significant volume of cotton (1,146 kg) was harvested from 7.5 acres in addition to also cultivating 32.5 acres for maize crops. For future similar programming, the project should start early, at least 1.5 months before the actual start of the cotton planting period. The process of land acquisition, land clearing and opening, and farmers' mobilization require ample time.

Overall, the farmers were receptive towards planting cotton as a livelihood crop and showed a willingness to continue as long as there is a guaranteed buyer, say GADC or any other trusted private sector player.

Pictorial from the implementation of activities.

Above; GADC staff training cotton farmers on post-harvest handling in Jemu village.

Above; Cotton farmers preparing materials/ingredients for making organic pesticides at Jemu village

Above; CAD staff demonstrating how organic pesticide ingredients are mixed after preparation.

Above: How farmers trap a nocturnal moth in the cotton fields in Jemu using sugar cane molasses.

Above; Cotton farmers attending a training session on spraying by GADC.

Above; Bush clearing using bulldozer.

EXIT MEETING OF THE COTTON PILOT STUDY HELD ON 27th/03/ 2024 AT ZONE ONE.

Agenda

1. Opening prayer
2. Self-introduction
3. Remarks; from the CEW
4. A word from the Junior Assistant
5. Speech from Senior Assistant
6. Reactions.
7. Closure

	Item	Issues discussed	Actions
1	**Opening prayer**	- Prayer conducted by Anguzu Job.	-
2	**Self-introduction**	- All participants introduced themselves according to their responsibilities.	-
3	**Remarks from the community extension worker (CEW)**	- He welcomed everyone to the exit meeting. - He thanked God for the protection of everyone whom He has kept alive for all this time that we have been engaged in the pilot study. - He added that he is grateful for Mr. Gift's recovery from the accident he was involved in.	-
4.	**Communication from the Junior Assistant**	- He thanked all members present for attending the meeting and also appreciated everyone for the hard work that they did especially during the implementation of the pilot study. - He also urged everyone to continue working much as CARITAS and JIN Corporation may not be closely following them. He then invited the Senior Assistant to say something.	-

5.	**Remarks from the Senior Assistant**	- He greeted the members and thanked them for turning up for the meeting. - He communicated about project exit, and scale-down of activities by 30/march/2024. JIN Corporation will completely withdraw from supporting the cotton pilot study project when this phase ends at the end of March. Caritas will however maintain minimal contact with the farmers as we explore other funding possibilities. In the meantime Caritas has discussed and agreed with the landlord to accept the farmers to continue using the block farm for at least one season, in return the farmers will assist in planting and maintaining the tree seedlings to be provided by Caritas. - He therefore urged the farmers to continue working on the block farm. - He also communicated that the two community extension workers will be closely guiding the farmers while working in the block farm this season. - He also added that the community extension workers together with the farmers will help to establish a woodlot in the block farm as requested for by the landlord. - Then the selection of the 25 farmers who are to work on the block farm this season was done.	

	AOB	- The farmers expressed their gratitude to CARITAS and JIN Corporation for their support throughout the pilot study and requested that the initiative be extended for another season so that they stabilize and be able to independently continue cotton production since it is a good cash crop.	-
	Closure	CARITAS thanked all the farmers for attending and closed the meeting	-

Compiled by Anguzu Job.

Junior Assistant,

Caritas Arua Diocese

anguzujbwinn@gmail.com

0786913512.

LISTS OF FARMERS WILLING TO CONTINUE FARMING ON THE BLOCK FARM THIS SEASON.

	REFUGEES		HOSTS
1	Kenyi Patrick Lomu	1	Anakuru Afisa
2	Christine yature	2	Bako Amina
3	Duku mike	3	Iddi Kelili Aruna
4	Annet Gala	4	Mau Mau Siraji
5	Jada Chaplain	5	Doka Salim
6	Kumi Kennedy	6	Oyoro Fatuma
7	Agele Swaib	7	Daluku Tairi
8	Wani julius	8	Ijosiga Jamal
9	Beatrice Achan	9	Rahman Yassin
10	Tomba James	10	Ayikoru Sabina
11	Kumi Kennedy		
12	Nora Anek		
13	Richard Soro		
14	Keji Viola		
15	John Lomeling		

Data Collection Survey on Refugees and Host Communities' Livelihood Improvement through Cotton Production Business in Uganda

Annex 3 : Interviewee List

Office of the Prime Minister (OPM), Department of Refugees in Kampala
Mr. Douglas Asiimwe (Ag. Commissioner Refugees)
Mr. Bafaki Charles
Office of the Prime Minister (OPM), Bidibidi Refugee Settlement
Mr. Hafizu Luwambo (Assistant Settlement Commandant for Zone 4)
Mr. Asimo William (Assistant Settlement Commandant, Focal Person of Livelihood)
Cotton Development Organisation (CDO)
Mr. Willy E.G.Owachi (Board Secretary / Finance and Admin Manager)
Ms. Damalie Lubwama (Production & Market Information Manager)
Mr. Lugojja Fredrick (Market Information & Monitoring Officer)
Ms. Colline Nahurira (Research Assistant)
Food and Agriculture Organization (FAO)
Mr. James Terjanian (Food Security and Livelihood Coordinator)
Ms. Leila Shamsaifar (Programme Development Specialist)
UNHCR Kampala
MD Arifur Rahman (Senior Development Officer)
Mr. Kaleab Zelalem (Head of Livelihoods and Economic Inclusion)
Mr. Gerald Peter Emoyo (Assistant of Livelihoods and Economic Inclusion Officer)
Mr. Charles Data Alemi
UNHCR Yumbe Field Office
Ms. Baraka Owenya (Head of UNHCR Yumbe Sub-office)
Mr. Innocent Muno (Field Officer of the Livelihood Sector)
Mr. Moulid Dugsiye Hirsi (Field Officer)
World Food Programme (WFP)
Mr. Cyridion Usengumuremyi (Head of Area Office)

Annex 4 : Concept Note

Concept Note for “Grants in Association with International Organisation”

1. Project Title

Food Production and Livelihood Improvement for Refugees and Host Communities through Block Farming

2. Objectives

- To promote self-reliance of refugees in the settlements in the West Nile and Acholi Sub-regions, Northern Uganda through providing means for food production and income generation. In the process, involve host community residents in cash and food crop production to revitalise agriculture in their areas.
- To realise the new model of refugee response “refugees and host communities work together for community development” through maximising the potential of Uganda’s friendly refugee policy.
- To realise livelihood improvement for refugees through collaboration with various stakeholders such as UN agencies, JICA and private companies.

3. Background

- Many refugees in Northern Uganda have depended on food support from UN agencies, since they have limited food production in small subsistence farms around their residences. However, the recent global situations led to significant reduction of food support, resulting in a serious negative impact on the refugees’ livelihood.
- There are vast unused lands owned by host communities around the settlements, but lack of capital hinders them expanding their farmlands. UNHCR and OPM have tried to utilise these unused lands as "Block Farms" where refugees can engage in agricultural production. While this initiative presents Uganda's friendly refugee response policies, there are numerous practical challenges in its implementation and it has only been realised on a limited scale by now.
- JICA conducted "Data collection survey on refugees and host communities' livelihood improvement through cotton production business in Uganda " (the Survey hereinafter) from July 2023, which aimed to:
    - Assess the current situation of refugees
    - Identify the challenges in operating block farms to improve the livelihoods of refugees and host communities
    - Verify the potential for earning cash income through cotton production, a traditional cash crop in the West Nile and Acholi Sub-regions

The results revealed that:

- The severe situation of refugees after the significant reduction of food support
- The potential of block farms to provide more opportunities for refugees to get access to farmlands
- The benefits and advantages of cotton as a cash crop (easy marketing and instant cash, easy management, drought resistant, wide soil adaptability, not perishable, no animal damage, etc.)
- The importance of technical support (provision of a series of practical training sessions) on cotton production by private companies with close monitoring and coordination by management consultants

- The implementation of the Survey included setting up a demonstration farm and conducting a pilot project engaging both refugees and host community members to explore the feasibility and challenges of block farms' operation. Based on findings of the Survey, the next step involves collaborating with relevant agencies to duplicate this model and generate substantial impact on a larger scale.

4. Project Framework

- Total budget: approximately 400 million JPY (approximately 2.6 million USD)
- Duration: from January 2025 to December 2027 (3years)
- Total beneficiaries: 1,500 households (Refugees 1,000 HH, Host Community members 500 HH), approximately 8,400 beneficiaries (about 5.6 family members/HH[1]),
- Targeted beneficiaries: Refugees; mainly South Sudanese refugees targeted and special focus on women headed household, HCs; special focus on socially vulnerable people
- Newly opened farmland: approximately 1,500 acres (approximately 300 acres/block farm, 5 sites)
- Candidate sites:
  - Bidibidi Refugee Settlement in Yumbe District
  - Refugee Settlements in Adjumani District
  - Palabek Refugee Settlement in Lamwo District
- Sustainable BF operation system: nomination of BF leaders for refugee and HC sides and formation of several committees (Security, Facility Maintenance, Conflict Resolution, Marketing, Environment, Sanitation, etc.) in order to manage BF efficiently with higher sustainability by involving key stakeholders (OPM, LCs, RWCs, traditional leaders, land loads, etc.)

5. Project Contents

(1) Establishment of Block Farms

[1] 5.6 family members/HH is the average of four refugee settlements, namely Rhino Camp, Imvepi, Bidibidi and Adjumani as of August 2023.

- Consultation meetings with relevant stakeholders to establish block farms
- Selection of candidate block farm sites and conduct of field surveys
- Negotiation of land lease conditions with landowners and the relevant government organisations, and selection of appropriate locations of block farms
- Contracts between the landowners and relevant government organisations such as OPM
- Land clearance and ploughing for first cultivation
- Construction of necessary facilities such as bore holes, toilets, shelters for the beneficiaries including women with small children, storages for farming equipment and agricultural products

(2) Selection of Beneficiaries and Land Allocation

- Setting selection criteria for the beneficiaries and selection of the beneficiaries with consideration of vulnerable people (e.g., women headed households)
- Making consensus on the conditions and responsibilities of beneficiaries
- Registration of the beneficiaries and basic data collection
- Plotting and allocation of the farmlands to the beneficiaries
- Distribution of materials for food production (maize seeds, etc.) for the first season (from the second season, the beneficiaries prepare their materials by themselves)
- Forming farmer groups if necessary

(3) Establishment of sustainable BF operation system

- Close coordination with key stakeholders (OPM, LCs, RWCs, traditional leaders, land loads, etc.)
- Preparation of by-laws for operation and maintenance of BF facilities
- Selection of leaders and board members from both refugee and HC sides by following BF by-laws
- Formation of sub-committees to operate BF efficiently and sustainably (Security, Facility Maintenance, Conflict Resolution, Marketing, Environment, Sanitation, etc.)
- Implementation of necessary actions through established BF operation system
- Organisation of general assemblies and periodical board meetings

(4) Technical Training for Commercial Cotton Production

- Confirmation of target beneficiaries who are willing to engage in cotton production
- Registration of the beneficiaries as producers
- Distribution of materials for cotton production (cotton seeds, natural pesticide materials, tools for natural pesticide spraying, harvesting bags, etc.)
- Technical training for cotton production by private enterprises, sharing quality requirements for purchase
- Development of operational system for cotton production and collection of

the products

(5) Miscellaneous (Items for Consideration)

- Environmental restoration of block farms after opening the farmlands (afforestation, etc.)

6. Project Timeline

The Project will be conducted from January 2025 to December 2027 (3 years)

with the following tentative schedule.

Year	2025												2026												2027											
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1. Establishment of Block Farms																																				
Stakeholder consultation																																				
IP selection and contract arrangements																																				
Land surveys and selection of locations																																				
Consultation with landowners and contract arrangements																																				
Land clearance																																				
Construction of facilities																																				
Maintenance of facilities																																				
2. Selection of Beneficiaries and Land Allocation																																				
Selection of beneficiaries																																				
Land allocation																																				
Food and cash crop production																																				
3. Establishment of sustainable BF operation system																																				
Preparation of by-laws																																				
Selection of leaders and board members																																				
Formation of sub-committee																																				
Necessary actions through BF operation system																																				
Organisation of general assemblies and board meetings																																				
4. Technical Training for Commercial Cotton Production																																				
Technical training																																				
Production cycle for maize, beans, etc.					1st season				2nd season								1st season				2nd season								1st season				2nd season			
Production cycle for cotton																																				

7. Relevant Organisations and Their Roles

(1) UNHCR

- Overall project implementation and supervision
- Coordination with relevant stakeholders for smooth implementation of the Project
- Selection, contract and management of Implementing Partners (IPs)
- Supervision of IPs' activities

(2) OPM Refugee Department and OPM Offices in Refugee Settlements

- Selection of appropriate locations for block farms in collaboration with relevant stakeholders
- Negotiation of land lease conditions with landowners in host communities
- Coordination with the related government organisations of Uganda

(3) JICA

- Progress monitoring of the Project through the monitoring reports prepared

by UNHCR
- Supporting collaboration with Japanese companies
- Sharing insights gained from the Survey and expertise in implementing development projects

(4) IPs (Implementing Partners, NGOs, etc.)
- Selection, contract and management of companies for land clearing and facility construction
- Supervision of land clearing and facility construction
- Mobilisation and management of farmer beneficiaries (groups) that consist of refugees and host community members
- Problem solving related to Block Farming activities
- Periodical monitoring and reporting on project progress to the relevant stakeholders
- Data collection on project impacts

(5) Management consultant
- Close monitoring the project progress and reporting to UNHCR
- Close coordination and consultation with IPs for the smooth implementation of the Project
- Close coordination with Ugandan private enterprises for technical training for commercial cotton production

(6) Ugandan Private Enterprises
- Technical training for commercial cotton production, distribution of necessary materials, and bridging the value chain

(7) Japanese Private Enterprises
- Guidance on quality improvement for cotton to obtain competence in the global market

8. Rationale of Implementation Structure

The Project realises a new modality of project implementation by UNHCR as a humanitarian agency to engage in development initiatives, symbolising “the nexus between humanitarian and development”. The proposed project structure allows:

- To utilise JICA's expertise gained through its technical cooperation projects and to share the experience from the Survey.
- To coordinate with the OMP Refugee Department, where JICA assigns a policy advisor, ensuring alignment.
- To materialise key points prioritised by Japan toward TICAD 9, such as empowerment of women and involvement of Japanese private companies.

9. Anticipated Challenges and Counter Measures

- Supervision of IPs:
  - UNHCR does not always conduct intensive monitoring of IPs, though careful coordination is a key to achieve the intended goal of the Project. JICA's supervisory consultants will ensure the quality of the service delivery

by the IPs to engage beneficiaries properly.

- Supervision of Contractors:
  - During the Survey, land opening process was hard to manage with delays and issues by the service provider. Due to limited eligible contractors near the settlements, careful selection and pre-coordination are essential to prevent such obstacles. The supervisory consultants will play an important role to monitor and proceed the project implementation process in collaboration with UNHCR and the relevant organisations.

(END)