Food and Agriculture Organization of the United Nations

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FAO RESILIENCE ANALYSIS REPORT No. 12

ANALYSING RESILIENCE FOR BETTER TARGETING AND ACTION

FOOD SECURITY, RESILIENCE AND WELL-BEING ANALYSIS OF REFUGEES AND HOST COMMUNITIES IN NORTHERN UGANDA

RESILIENCE INDEX MEASUREMENT AND ANALYSIS II ◢ RIMA II

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The analysis has been conducted within the Resilience Measurement Unit (RMU), composed by representatives from FAO, the United Nations Children's Fund (UNICEF), the World Food Programme (WFP) and the Uganda Bureau of Statistics (UBOS), under the leadership of the Office of the Prime Minister of Uganda (OPM) and with the technical support of the Intergovernmental Authority on Development/ Resilience Analysis Unit (IGAD/RAU).

The report benefits of technical information and contributions by Marco d'Errico, Rebecca Pietrelli, Stefania Di Giuseppe, Genevieve Theodorakis, Doussou Traore and Lavinia Antonaci from FAO's Agricultural Development Economics Division (ESA); Luca Russo from the Resilience Programme Management Team (SP5), Maria Guglielma Da Passano, Line Kaspersen, Stanslus Okurut and Paul Opio from FAO Uganda; Immaculate Atieno from FAO Kenya; Erdgin Mane from the Social Policies and Rural Institutions Division (ESP) of the FAO; Carlo Cafiero, Sara Viviani, Filippo Gheri and Meghan Miller from the FAO Statistics Division (ESS).

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ACRONYMS

ABS	Access to Basic Services
AC	Adaptive Capacity
AST	Assets
CSI	Coping Strategy Index
FIES	Food Insecurity Experience Scale
HH	Household Head
MIMIC	Multiple Indicators Multiple Causes
OPM	Office of the Prime Minister of Uganda
RAP	Resilience Analysis and Policies (team)
RCI	Resilience Capacity Index
RIMA	Resilience Index Measurement and Analysis
RMU	Resilience Measurement Unit
RSM	Resilience Structure Matrix
SEM	Structural Equation Model
SSN	Social Safety Nets
TLU	Tropical Livestock Units
UBOS	Uganda Bureau of Statistics
UNICEF	United Nations Children's Fund
USD	United States Dollars
WFP	Word Food Programme

OBJECTIVE OF THE ANALYSIS

Uganda presents a unique political framework for the refugee population living in the country, promoting refugees' self-reliance and favouring a development-based approach to refugee assistance. Nevertheless, the magnitude and the speed of influx of refugees are challenging the implementation of this progressive policy.

A total of 2.1 million refugees from South Sudan have fled conflict and streamed into neighbouring countries since 2016. As of December 2017, 1 053 276 of those refugees had migrated to Uganda, 354 429 of them in 2017 alone, more than 900 per day. A total of 61 percent of the refugees are children under the age of 18; the number of women together with children under 18 made up 82 percent of the total. Uganda is the largest refugee host country in Africa, with a total of 1.4 million refugees and asylum seekers from South Sudan, Burundi and the Democratic Republic of the Congo (UNHCR, 2018).

The prolonged and steady influx of refugees is increasing concern about the sustainability of the 'Uganda model', as the trend is one of continual growth with little prospects for any sizeable change in the short-term future. Apart from insufficient resources for emergency reception (food, healthcare, settlement and shelter), the continually increasing population multiplies the enormous pressures on already strained public services, natural resources and local infrastructure.

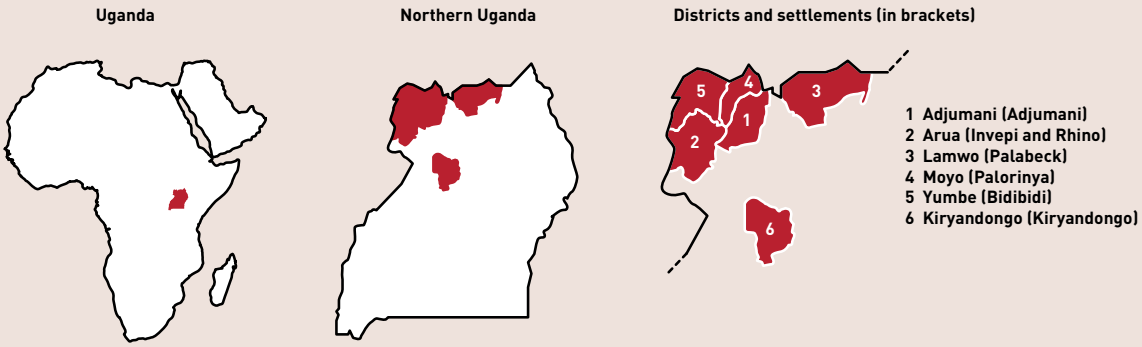
In order to make the progressive Uganda refugees policy successful in the medium- and long-term, the refugees' response needs to facilitate their inclusion in the country's development agenda. No longer focusing exclusively on short-term, life-saving interventions, the response should act as a vector for refugees' integration in the economy; improving management of land, water and natural resources; exploiting the socio-economic opportunities associated with the refugees' presence, skills and development; and strengthening the hosting districts' capacity to absorb and manage these resources. The positive impact would affect refugees, host communities and hosting districts alike, thus moving towards social and economic integration.

In August 2017, FAO was asked by the Commissioner for Refugees (Office of the Prime Minister of Uganda, OPM) to support the implementation of a socio-economic analysis within the refugees' settlements and host communities, with the aim of providing a comprehensive assessment of the current state of the refugees' food security, well-being and resilience. Although refugees in Uganda are given land and mobility rights, their food security remains low, with a high dependency on food aid. The assumption was that by better understanding refugees' preferences and livelihoods strategies which determine their resilience, it would be possible to unlock the development potential of the land, increase productivity and help them achieve independence and self-reliance.

The linkages between the assets provided as part of the refugees support and resilience were unclear, as the tenure governance and decision-making mechanisms in the settlements context were unmapped. Socio-economic strategies and networks were complex and ramified, with many South Sudanese citizens having been refugees in Uganda in the past. Households and nuclear families were identified as among the unit to receive aid, but in the South Sudanese refugees' resilience context, they act only as cogs in broader systems (extended families, tribesman groups, church groups, etc.) which are difficult to unravel. A high level of mobility further complicated planning and posed a challenge to aid effectiveness.

Under the coordination of the Refugees Commissioner OPM and in collaboration with the Resilience Measurement Unit (RMU) – the OPM, the Ugandan Bureau of Statistics (UBOS), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Children's Fund (UNICEF) and the World Food Programme (WFP) – FAO worked together with the Uganda Bureau of Statistics (UBOS) and local partners in the implementation of data collection in the northern districts of the country, where most of the refugee population from South Sudan has settled. During November and December 2017, both the refugee population and the host communities (of households living near the settlements) have been interviewed in the districts of Adjumani, Moyo, Yumbe, Arua, Lamwo, Koboko and Kiryandongo (Figure 1).

Figure 1. **Data collection map**



Source:
Authors' own elaboration.

Based on the ad hoc data collection and other data and information from additional sources – namely, the Integrated Food Security Phase Classification (IPC) and the Early Warning – Early Action (EWEA) – the topics addressed in this report are: food security, changes in livelihoods strategies over time, resilience following the Resilience Index Measurement and Analysis (RIMA) approach, land and natural resources, and social capital and aspirations. The final aim of the analysis is to be calibrated to the main political needs of national and international institutions regarding the refugee situation in northern Uganda.

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1 KEY MESSAGES

This section summarizes the main results of the analysis and related implications for policy and programming.

MAIN FINDING 1

Commonalities between refugees and host communities exist and are increasing over time, providing a strong foundation for peaceful coexistence and development.

- Ensure that programmes are informed based on an understanding of decision-making mechanisms within the household and the extended group the household belongs to, in order to increase the possibility to inform decision-making over assets such as land.
- Common demographics and social structures between refugees and host communities will provide a sounder foundation for integration and peaceful coexistence; programmes should build on these similarities and uniting factors.

MAIN FINDING 2

Refugees' integration into the local economy is a long-term process.

- Stimulate production by strengthening the private sector and enabling local production to meet the growing demands linked to the presence of refugees and thereby improve food security, rather than seeing price increases as a result of the influx.
- Boost hosting districts' labour markets by identifying business opportunities that can take advantage of the specific characteristics of the population in these areas, the abundant labour force, its young age and limited skills, etc.
- Facilitate refugees' integration in the Ugandan labour market on the basis of their skills, past experiences and aspirations. This can be done by establishing an informal support network between refugee and host community groups working in similar sectors, or developing apprentice programmes to help assimilate refugees with lower levels of skills.
- Support refugees' businesses and activities by granting access to infrastructure and basic services, and support for integrating their activities within local markets and sales systems.

This could include the strengthening the existing microfinance services tailored to the needs of refugee start-up businesses, and when possible strengthening social inclusion through mixed savings groups between refugees and host communities.

MAIN FINDING 3

Displacement and refugees' arrival create opportunities for operating business enterprises.

- Support entrepreneurs through access to credit, inputs and infrastructure; social tension and inclusion dynamics are to be monitored. Development agencies should systematize the implementation of special aid products that are tailored to refugee needs in terms of access to credit (via microcredit products) and increasing the technical quality of their inputs (using diverse types).
- Those who are willing to start enterprises or have already done so are the refugees who are most likely to move towards economic independence quickly. They should be linked to the existing trainings and network-building opportunities provided by partners, and existing access to credit opportunities, etc. Similarly, mechanisms to facilitate negotiations for access to land and to agribusiness financial support should be systematized and provided to those interested in agribusiness development. Development of businesses and services for which the demand is already in place should be prioritized.
- Identify those business opportunities that are helping refugees move towards self-reliance, but which are creating a negative impact on the society or the environment in order to provide viable alternatives.

MAIN FINDING 4

A vibrant informal market for exchange already exists between refugees and host communities, contributing to their resilience.

- Gaps in, and demands made by, the informal local markets can help identify locally appropriate opportunities for market and skills development as well as employment and value chain development. This would in turn help increase food security through local production.

MAIN FINDING 5

Refugee households headed by a woman or a young person are more entrepreneurial, as are also those refugees who participate in training programmes and associations.

- Facilitate access to markets and productive inputs for female and young entrepreneurs in refugee populations. This could entail promoting the dissemination of market price information, investment in market infrastructure, such as logistics and storage facilities; developing micro-insurance and microcredit products tailored to the needs of local business owners; and providing training to entrepreneurs on running a business.
- Facilitate their integration with local associations (e.g. women's associations and groups) and their participation in training in order to facilitate empowerment and income source diversification. Specific training sessions could include guidance on how to start a small business, sharing best business management practices and educating women on available resources to enhance their businesses, such as microcredit products.
- Target elderly members of the households for increased direct support.

MAIN FINDING 6

The majority of refugee and host communities identify as crop farmers. For refugees one of the main challenges is secure access to land, for host communities is secure access to water for production.

- Support increased tenure security through enabling districts to provide customary land rights registration services. Increased tenure security will facilitate a more sustainable approach to land sharing arrangements between refugees and host communities opening the way for larger scale production on underutilized land.
- Challenges related to the availability of land and water and the potential for conflicts need to be taken into account when designing programmes intended to diversify diet and income through livestock rearing.
- Protection of Ugandan livestock from livestock diseases still present in South Sudan can be increased through cross-border vaccination campaigns, and increased education and awareness.
- Refugees face challenges that prevent them from rearing livestock; however, these challenges could be overcome through training sessions. Trained refugees could be transformed into service providers for the sector, such as community animal health workers, meat and meat products producers, private providers of drugs and vaccines, etc.

MAIN FINDING 7

Having access to stable, basic services (improved sanitation, improved water and markets), as well as the diversification of income-generating activities, will enhance the food security of host and refugee communities – the latter group being more food insecure and strongly reliant on assistance as a main source of food.

- Improve the management of regional food stocks in order to respond to the increased food demand generated by refugee populations, entailing investments in improved food storage and distribution networks.
- To reinforce host community incomes and promote integration between refugee and host populations, government and aid food stocks could be produced and purchased from farmers in the region. The most appropriate food items to be produced can be identified under the leadership of the local government production offices, based on the soils and water available, nutrition needs, market demand, etc.
- Boost the capacity for agricultural production and marketing in the host communities. In collaboration with the OPM and the district production departments, enhance access to adequate agricultural inputs, provide harmonized quality trainings on the diversification of crops, support the development of adequate and improved local seeds and plants, and promote best practices in agricultural management and investments in agriculture. Additional investments in development of links to agricultural value chains in high demand in the refugee areas will also contribute to the same objective.
- Develop specific packages for refugee support that take into account the diversity of this population (skills, age, aspirations, opportunities, etc.), ranging from long-term social protection mechanisms for the most vulnerable without options to increase their resilience and self-reliance, to adapted packages that include a mix of food aid and livelihood diversification support (in the form of inputs, cash, capacity, assets, etc.),

to activities targeting those who have already moved toward self-reliance and can eventually graduate from the support programme.

- Rationalize and make more sustainable the delivery of basic services, aligning it with the district development plan and ensuring any long-term negative effect on the environment and development. Among the services, the supply of safe drinking water and primary healthcare are those most in demand by refugees.

MAIN FINDING 8

Refugee households are less resilient than households living in the host communities in all the analysed districts. The former have low education levels, poor diversification of income sources, a limited number of crops cultivated and they also report a low level of productive assets, such as land for cropping and livestock.

- Given that access to land is so important for resilience, and is in fact a limiting factor for refugees, the productive outputs of what are limited plots of land must be maximized through soil fertility improvements and other actions.
- Improving education levels among the refugee population is crucial to enhancing their resilience capacity. This should be reinforced at two levels: adults and children. Firstly, adults could receive basic educational training that would equip them with the skills to better navigate the basics of their area of economic activity, entailing functional adult literacy. Secondly, access to education could be facilitated by i) providing small cash transfers to families sending children to school (small amounts that could help make up for lost income from child labour); ii) subsidizing access to school supplies and fees; and iii) developing school meal programmes to minimize the cost of feeding children at home.
- Interventions should enhance refugees' access to cropping land and drought-resistant livestock and increase their tenure security. This could be accomplished by encouraging pooling, renting and casual labour on larger farms (generally, land is not a limiting constraint in the north, while access to labour is, as household labour is not sufficient to work than about two hectares) and increasing tenure security for the landlords (hindering them from renting it out).

MAIN FINDING 9

Households with only male adults are less resilient than those with only female adults, or both female and male adults. The households with only male adults tend to have a much lower adaptive capacity, less safety nets, lower expenditures on food and lower dietary diversity.

- Pay particular attention to households with only adult males during the targeting of refugee communities.
- Develop nutrition education projects that target both men and women and school feeding projects. It is essential that women's contribution to food security and nutrition is acknowledged, and barriers to gender equality are tackled through an enabling policy and legal environment.

MAIN FINDING 10

In terms of social safety nets, the hosting households mainly count on credit and associations, while refugees count on formal transfers.

- Facilitating access to credit and participation in associations is crucial to increasing refugees' resilience capacity. Positive spillovers can emerge by integrating skill development programmes and access to credit and investment for refugees.
- Given the dependence of refugee populations on transfers, training programmes could be designed to advise refugees on ways of investing their transfer funds and diversifying their income sources.
- Support efforts towards regular pulling of financial resources under Village Savings and Loans Associations to support small business development among women and youth groups, within the process establishing mechanisms for peace consolidation and conflict mitigation.

MAIN FINDING 11

The resilience capacity of households in the host communities is mainly threatened by natural shocks, such as drought, water shortage and fire, while the refugees' resilience is mainly reduced by the income earner potentially falling ill. Conversely, the high cost of agricultural inputs increases the resilience of host communities.

- Awareness-raising and capacity-building initiatives are expected to strengthen natural resource management to prevent those shocks as well as to limit the effects of shocks. This could include educating recipients on how to mitigate risk by diversifying crops and investing in varieties that are more resistant to risks such as drought, heat or flooding.
- Mechanisms for disease and infection prevention should target the refugee population.
- Establishment of small-scale irrigation systems and valley dams in water catchment areas to provide water for production.

MAIN FINDING 12

Refugee households perceive themselves to be more resilient. In contrast, host communities report lower levels of perceived resilience. More generally, those who have already experienced shocks perceive themselves as more resilient.

- Support people with adequate social and agricultural insurance mechanisms to enhance the ability of households to cope with shocks.
- They are probably enrolling into these programmes chiefly because they feel that they will not be able to cope with shocks. Support their affiliations and help build self-esteem.

2 MAIN FINDINGS; POLICY AND PROGRAMMING IMPLICATIONS

This section provides, for each of the findings, key evidence from the analysis and outlines programming and policy implications

2.1 LIVELIHOODS STRATEGIES AND CHANGES OVER TIME

MAIN FINDING 1

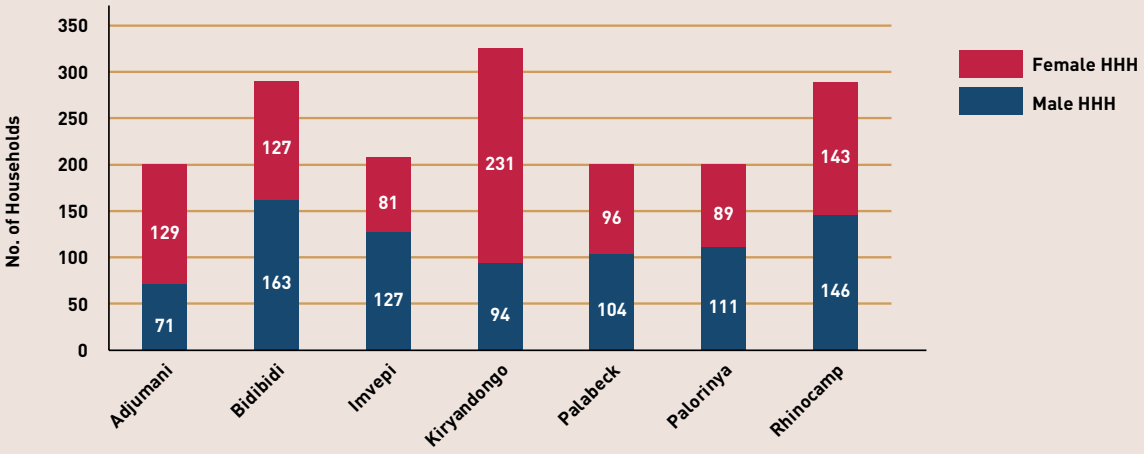
Commonalities between refugees and host communities exist and are increasing over time, providing a strong foundation for peaceful coexistence and development.

Understanding household governance issues is critical to work aimed at increasing the productivity of refugees' assets and their self-reliance. The governance system often spreads across the boundaries of single households or the settlements to reach out to the extended families or groups which the households belong to. The household is not therefore an independent unit within the system affecting refugees, but one element of a broader system made up by interdependent components shaping their resilience, livelihoods and decision-making. Without identifying this system's rules it will be difficult to understand refugees' choices.

The refugees are a young population. Average age among female refugees is 18.65 while among male refugees it is 15.73. The incidence of children is very high and has been stable since the beginning of the last influx in 2016.

At the beginning of the crisis, more than 80 percent of the refugees' households were women-headed. As a result of the protracted emergency and the increased fighting in some of the South Sudanese states neighbouring Uganda, the demographics of the refugee population have changed. In December 2017, only 52 percent of the households identified themselves as female-headed, while 48 percent identified themselves as male-headed. Many households explained that women and children fled the conflict first, and were joined by their husbands only later when the fighting intensified on the other side of the border; this also explains why older settlements have more female-headed households. There are also more female-headed households in settlements farther away from the border (such as Kyriandongo, Adjumani and Rhino Camp) (Figure 2), most likely because men (especially pastoral groups) go back home across the border frequently to look after their property; this is easier to do from the closer settlements, where they stay with their families.

Figure 2. **Gender of household head by settlement**



Source:
Authors' own elaboration.

These changes have important implications on the stability of the households. They are now reverting back to their original structures and to more traditional, male-headed decision-making mechanisms. As entire households are being settled in Uganda (even if settled across different districts), the ability to think in terms of longer-term options also increases. Even where the male household heads do not permanently live in the same location as their family, or are commuting, they nonetheless remotely guide household decision-making processes.

The refugee population is moving towards mirroring more closely the host communities in terms of gender representation. Regarding the age groups, in the host communities the average age among females is 20.7 and among males it is 19.5; and 80 percent of households are male-headed in contrast to the 20 percent that are female-headed.

POLICY AND PROGRAMMING IMPLICATIONS

- *Ensure that programmes are informed, based on an understanding of decision-making mechanisms within the household and the extended group that the household belongs to, in order to increase the possibility to inform decision-making over assets such as land.*
- *Common demographics and social structures between refugees and host communities will provide a sounder foundation for integration and peaceful coexistence; programmes should build on these similarities and unifying factors.*

MAIN FINDING 2

Refugees' integration into the local economy is a long-term process.

The majority of refugees aspire to work in the same economic sector[1] where they were occupied in their country of origin. However, living longer in the same area after displacement increases the willingness to change livelihood. In fact, only those who are living for a longer period in the same area after displacement are more willing to change from one economic sector to another in the future (Table A7).

There are refugees who are willing to be integrated in the local economy. Of these, the largest part would like to go into the education system, public administration, health and social work, community work, and transport and financial sectors. Having a greater level of formal education contributes to explaining the refugees' aspirations of being integrated in the local economy (Table A7). This is expected to create potentially substantial benefits for host communities. This finding is in line with other analyses on refugees in Uganda; for instance, Taylor *et al.* (2016) found positive impacts of refugee households on local economies in and around the settlements in which they live, by boosting activities that supply goods and services.

A smaller proportion of refugees who arrived in Uganda would like to open a small shop in the future – mainly involving minor trading in the vicinity of their homes. This is expected to translate into slight benefits to the local economy and limited integration with the host communities.

More generally, the sectors where the refugees would mainly like to work in the future are agriculture, health and social work, education and commerce/sales. Additionally, the collected data reveal stability between past and future desired occupation sectors of the interviewed refugees. In fact, the majority of refugees (51 percent of interviewed refugees over 12 years old) would like to work in the future in the same economic sector they were working in their country of origin. They report, on average, having less than four years of education and the majority of them are illiterate (they cannot write and read in neither English nor local languages).[2] It is critical to ensure that the training and possible career paths are not only identified based on existing skills or aspirations, but also that the challenges and absorption capacity of the local labour market are taken into account, to foresee a high level of mobility as a result of the skills development.

With the current high rate of unemployment among local youths, the focus of implementing partners on providing employment opportunities for refugees, and the fact that schooling is becoming more accessible and affordable for refugees, there is a serious risk of creating a gap between the opportunities and skills of refugees and host communities, thus undermining their relationships and peaceful coexistence.

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[1] The classification of economic sectors adopted in the analysis includes: agriculture and hunting; fishing; mining; manufacturing; energy (electricity, solar, water supply, etc.); construction; sale, maintenance and repair; hotels and restaurants; transport and storage; financial intermediation; real estate, renting and business activities; education; health and social work; community, social and personal services activities; private households with employed persons; extra-territorial organizations and bodies; public administration and defense; and other sectors not included in the list.

[2] Tables and data not supplied in the report but available upon request.

POLICY AND PROGRAMMING IMPLICATIONS

- *Stimulate the production by strengthening the private sector and enabling local production to meet the growing demands linked to the presence of refugees, and thereby improve food security rather than seeing increased prices as a result of the influx.*
- *Boost hosting districts' labour markets by identifying business opportunities that can take advantage of the specific characteristics of the population in these areas, the abundant labour force, the average young age and limited skills, etc.*
- *Facilitate refugees' integration in the Ugandan labour market on the basis of their skills, past experiences and aspirations. This can be done by establishing an informal support network between refugee and host community groups working in similar sectors, or developing apprenticeship programmes to help assimilate refugees with lower levels of skills.*
- *Support refugees' businesses and activities by granting access to infrastructure and basic services, and providing support towards integrating their activities within local markets and sales systems. This could include the strengthening of existing microfinance services tailored to the needs of refugee start-up businesses and, where possible, strengthening social inclusion through mixed savings groups involving refugees and host communities.*

MAIN FINDING 3

Displacement and refugees' arrival create opportunities for operating business enterprises.

For refugees and host households, displacement drives motivations for operating an enterprise. Nearly half of the households in the host communities run small or big enterprises (47 percent) as opposed to one-third of those in refugee camps (29 percent).

The main reasons for operating an enterprise reported by refugee households are "new opportunity after displacement" (response of 45 percent of refugee-run enterprises) and "the arrival of other refugees" (response of 28 percent of refugee-run enterprises). Over 30 percent of the enterprises run by host communities gave the "arrival of refugees" as the reason for operating businesses.

The most frequently adopted businesses in the refugee settlements are petty trading and shops (28 percent of the activities), home breweries (17 percent) and charcoal and firewood sales (11 percent); followed by fish sales (six percent); taxi or *bodaboda* services (five percent) and hotel and food kiosks (five percent). The same types of enterprises are run by households in the host communities but in different shares: home breweries (22 percent) are the most numerous; followed by charcoal and firewood sales (18 percent); petty trading and shopkeeping (15 percent); and taxi or *bodaboda* services (six percent).

The significance of charcoal and firewood dealing among both the host and refugee communities is concerning. Interventions to mitigate the impact of these occupations and substitute this enterprise needs to be considered in order to avoid massive environmental degradation and possible conflicts between the two communities, as this places them not only in direct competition with each other but their combined activities places a significant stress on the environment.

Similarly, the impact on the local community of the breweries and their expansion should be better understood.

POLICY AND PROGRAMMING IMPLICATIONS

- *Support entrepreneurs through access to credit, inputs and infrastructure; social tension and inclusion dynamics are to be monitored. Development agencies should systematize the implementation of special aid products that are tailored to refugee needs in terms of access to credit (via microcredit products) and increase the technical quality of their inputs (using diverse varieties).*
- *Those who are willing to start enterprises, or those who have already done so, are the refugees who are most likely to move towards economic independence quickly. They should be linked to the existing training and network-building opportunities provided by partners, existing access to credit opportunities, etc. Similarly, mechanisms to facilitate negotiations for access to land and access to agribusiness financial support should be systematized and provided to those interested in agribusiness development. Development of businesses and services for which the demand is already in place should be prioritized.*
- *Identify those business opportunities that are helping refugees move towards self-reliance but which are creating a negative impact on society or the environment and provide viable alternatives.*

MAIN FINDING 4

A vibrant informal market for exchange already exists between refugees and host communities, contributing to their resilience.

Refugees and host communities have access, in similar quantities, to several food and non-food items. For example, more than 90 percent of both refugees and host communities declare to have easy access to cereals, pulses, vegetables and spices, while the levels of consumption of eggs or dairy products is consistently below 10 percent across both refugee and host households (Table 1). This finding indicates that communities find informal ways to equally balance their diet, exchanging items they have in surplus (from produce or food aid) to acquire those that they lack. Similarly, refugees and hosts have several of the same assets, such as jerry cans, cookers and kitchen utensils, which are evenly distributed among refugees and hosts. What this indicates is that a fluid informal market already exists as well as a demand that the refugees support and which private markets are currently not in a position to easily address.

Table 1. **Consumed food groups by district**

	Settlement Type		Districts					
Food Category	Refugees (n=1 712)	Hosts (n=1 322)	Adjumani	Arua	Yumbe	Moyo	Kiryandongo	Lamwo
Cereals	99.50	91.40	89.00	96.2	93.21	99.50	98.50	98.90
White Tubers and Roots	42.60	89.00	78.00	51.50	67.17	60.40	63.80	70.50
Vegetables	91.00	96.30	98.00	88.80	92.64	97.00	93.20	97.50
Fruits	22.70	45.30	37.00	21.90	42.08	19.90	52.20	24.90
Meat	11.40	32.80	26.00	21.10	21.32	16.10	23.30	15.00
Eggs	6.70	18.30	9.00	13.00	19.25	4.60	14.20	4.10
Fish	47.10	65.60	41.00	58.40	69.81	50.50	45.40	58.50
Pulses	94.30	95.90	97.00	92.90	97.92	98.40	91.70	95.10
Milk and milk products	5.00	10.40	5.00	5.50	5.28	7.40	15.70	4.60
Oils, fats and butter	95.30	83.40	94.00	86.20	92.08	92.10	92.20	88.00
Sugar	25.10	49.90	27.00	36.50	39.43	33.30	53.70	15.30
Spices, condiments, beverages	98.60	98.70	100.00	96.50	99.43	100.00	98.90	100.00

POLICY AND PROGRAMMING IMPLICATIONS

- *Gaps and demands of the informal local markets can help identify locally appropriate opportunities for market and skills development, employment and value chain development. This would in turn help increase food security through local production.*

MAIN FINDING 5

Refugee households headed by a woman or a young person are more entrepreneurial, as are also those refugees who participate in training programmes and associations.

Among the interviewed households living in refugee settlements, those running enterprises have, in almost equal proportions, male and female heads. Moreover, refugee households with female and young heads are found to be in an advantageous position for operating enterprises (Table A8).

Additionally, the factors that drive refugees' enterprises are: the connections made – both to trade markets and social networks – through participation in associations; the level of household wealth; the possibility of the household to rely on different sources of income; and participation in training. In other words, refugee households that are i) better linked to markets and to other members of the community where they live, ii) can dispose of more assets; iii) are engaged in different income-generating activities; and, more importantly for programming implications, iv) have participated in training, are all more likely to operate an enterprise after displacement. Finally, the refugees living in Adjumani and Lamwo districts are more likely to operate an enterprise as compared to households living in the other districts covered by the ad hoc survey.

In contrast, there is evidence that those who receive both formal and informal transfers are less likely to operate business enterprises. This may occur in cases where assistance mainly addresses households in specific livelihood categories, such as vulnerable households, or it mainly targets refugees upon arrival, since the development of enterprises takes more time. Or it may indicate a degree of laziness caused by the transfers, whereas those who do not receive any are often forced to set up small businesses to make ends meet.

To sum up, in addition to having a female- or young-headed household, refugees operating enterprises are facilitated by living close to trade markets; their level of wealth; diversification of income sources; and, more importantly, through participation in associations and training. Finally, households with elderly members are much less likely to engage in enterprises and thus not liable to diversify their income sources. By nature, this target group can be assumed to be more risk adverse and less entrepreneurial.

POLICY AND PROGRAMMING IMPLICATIONS

- *Facilitate access to markets and productive inputs for female and young entrepreneurs in refugee populations. This could entail promoting the dissemination of market price information, investing in market infrastructure, such as logistics and storage facilities; developing micro-insurance and microcredit products tailored to the needs of local business owners; and providing training to entrepreneurs on running a business.*
- *Facilitate their integration with local associations (e.g. women's associations and groups) and their participation in training in order to facilitate empowerment and income source diversification. Specific training sessions could include guidance on how to start a small business, sharing best business management practices and educating women on available resources to enhance their businesses, such as microcredit products.*
- *Target elderly members of the households to foster increased direct support.*

MAIN FINDING 6

The majority of refugee and host communities identify themselves as crop farmers. For refugees, one of the main challenges is securing access to land, for host communities it is securing access to production.

The majority of refugees (66 percent) define themselves as crop farmers, while only 20 percent see themselves as agro-pastoralists. This also indicates that many among these refugees declare they do nothing (14 percent). The divide between the two livelihoods is more balanced across host communities where only 56 percent define themselves as pure crop farmers, and 44 percent as agro-pastoralists.

A total of 97 percent of the host communities and 95 percent of the refugees declare that they are engaged in crop production, while only 45 percent of the host communities and 22 percent of the refugees sell part of their produce. While the accessibility of water is relatively similar among the two groups (through communal boreholes and piped public taps), refugees have limited access to land. This limits their ability to produce sufficient quantities to be also able to sell at the market, once the household has been fed. On average, refugees have access to less than half an acre

of land, while host households declare to have around two acres of land. This is linked to the fact that much of the land around the settlements is communally owned and normally smaller tracks would be assigned to individual households, while the majority would be managed by the extended family or clan head.

The most common way to access land for refugees is through Government programmes, while for host communities it is through inheritance or family ties (Table 2). Even so, there is evidence of an increasing number of refugees gaining access to land through leases, borrowing, share-cropping or other arrangements. Although these informal transactions are currently ad hoc and unregulated, they are quite common, and are testimony to the availability of underused land around many of the settlements and the willingness of hosts to share this asset with refugees.

Table 2. **Land acquisition (percentage of households) for refugee population by district**

	Adjumani	Arua	Kiryandongo	Lamwo	Moyo	Yumbe
Purchased	0.76	1.08	1.60	0.44	0.40	1.63
Inherited or received as gift	3.82	1.55	5.88	0.44	1.99	1.08
Leased-in	1.15	0.31	3.48		0.80	0.27
Just walked in	4.20	0.93		0.87	7.57	4.61
Do not know						0.27
Received from the government for the refugee status	80.53	91.34	75.94	94.32	84.46	86.45
Agreement with land/use rights owner (user rights)	6.49	3.25	8.82	1.75	3.98	5.42
Without agreement with land/use rights owner (user rights)	1.15	0.77	2.67	1.75	0.80	0.27
Other (Specify)	1.91	0.77	1.60	0.44		

When considering increasing production and productivity in a context of reduced plot sizes, these arrangements could become a viable way to gain access to greater tracts of land for refugees and host communities to jointly use for intensive cultivation. Currently, however, because of the lack of registered rights on the land, the security of these agreements is extremely low, discouraging longer-term and larger investments.

Even though they possess livestock rearing skills, refugee households' livestock production is on average less than one-fourth of that of the host communities. This may be attributed mainly to the fact that refugees are discouraged from bringing their own cattle for fear of disease transmission, and to difficulties in accessing the land and water required for cattle keeping. The number of cattle brought into Uganda through unofficial access points is increasing with the intensification of fighting in South Sudan. This is increasing conflicts regarding invasion of agricultural land by livestock in areas neighbouring the settlements.

POLICY AND PROGRAMMING IMPLICATIONS

- *Support increased tenure security by enabling districts to provide customary land rights registration services. Increased tenure security will enable a more sustainable approach to land-sharing arrangements between refugees and host communities, opening the way for larger-scale production on underutilized land.*
- *Challenges related to the availability of land and water and the potential for conflicts need to be taken into account when designing programmes intended to diversify diet and income through livestock rearing.*
- *Protection of Ugandan livestock from livestock diseases which are still present in South Sudan can be increased through cross-border vaccination campaigns, and increased education and awareness-raising.*
- *Refugees face challenges that prevent them from rearing livestock; however, these challenges could be overcome through training sessions. Trained refugees could be transformed into service providers for the sector, community animal health workers, meat and meat products producers, private providers of drugs and vaccines, etc.*

2.2 FOOD SECURITY ANALYSIS

MAIN FINDING 7

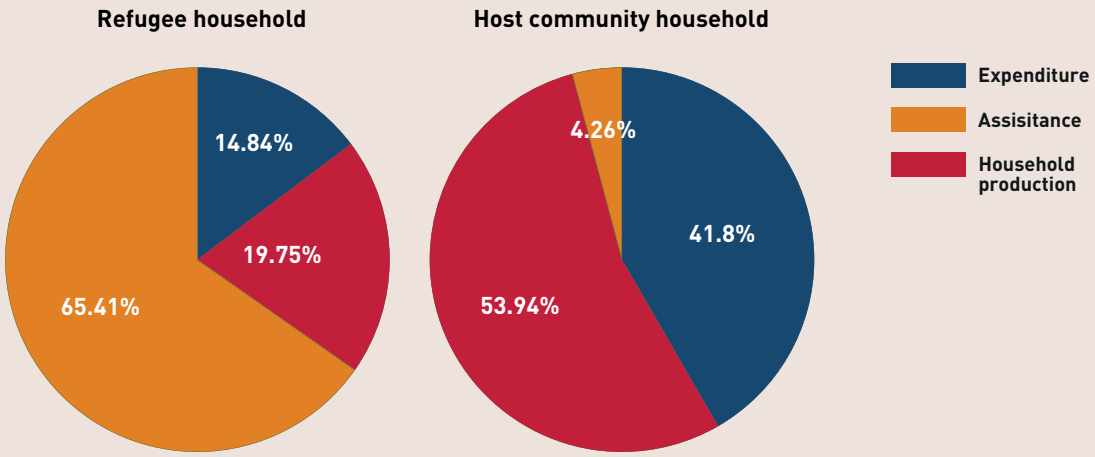
Having access to stable, basic services (improved sanitation and water, and markets) as well as the diversification of income-generating activities, will enhance the food security of host and refugee communities – the latter group being more food insecure and strongly reliant on assistance as main source of consumed food.

The food and nutrition security situation is critical in northern Uganda and in the South Sudanese region bordering Uganda where the refugee population comes from. Despite the improvements achieved during 2017, the food insecurity situation remains serious in the West Nile region in northern Uganda, where 13 percent of the population is in IPC phase 2 and five percent in IPC phase 3 (see IPC box on the West Nile region). Furthermore, the southern area of South Sudan, from where the refugee population originates, is projected to remain in the IPC emergency phase throughout 2018 (see IPC box on the West Nile region below).

Refugee households have lower nutritional outcomes and a poorly diversified diet in comparison to hosting households. This is confirmed by a number of different food security indicators (Table A6). As an example, refugees' Household Dietary Diversity Score (HDDS) varies between 5.9 in Arua and 6.9 in Kyriandongo, while host communities vary between 7.4 in Adjumani and 8.6 in Kyriandongo. These food diversification scores, which are much higher than what would be found in situations of isolation or confinement, are the result of the proximity to the host communities and the free movement of people and goods granted under the Ugandan framework to refugees. In situations of confinement or remoteness from host communities and markets, full dependency on food aid could result in even lower food diversification scores. Additionally, according to the Food Insecurity Experience Scale (FIES), some 89 percent of refugees have experienced food insecurity versus 71 percent of households in the host communities (Annex I). Further details on the food security differences at district level can be found in Annex I.

Additionally, the refugee population strongly relies on assistance as a main source of food consumption (Figure 3).

Figure 3. **Shares of food consumption (expenditure, own-produced and received as aid) by household**



Source: Authors' own elaboration.

Having access to basic services, such as improved sanitation and water sources as well as livestock and petty trading markets, enhances household food security (Table A6). Furthermore, in terms of shocks, water shortage and illness of household members are found to be relevant both to the availability of food as well as quality of the diet. The provision of drinking water, improved sanitation and health services are deemed crucial, especially in the event of shocks such as illness or water shortage.

Host communities have to walk longer distances and spend more time than refugees to access water, hospitals and basic health facilities and petty trading markets. This is linked to the fact that – especially during its first phase – the influx services for refugees were established without much coordination with the existing structures. This can lead to jealousy, when host communities must share resources with greater numbers of people, while refugees receive emergency support funds, making them better off than the local communities. This can create a risk of conflict, if not addressed.

Within the Settlement Transformative Agenda included in the National Development Plan (NDP II 2016-2020), the Government of Uganda continues to strengthen the refugee-hosting environment. One of the key priorities of the refugee response approach is the integration of social services delivery in local government systems. The interventions cover many aspects, such as health, reproductive health and HIV/Aids response, nutrition, water, sanitation and hygiene, energy, shelter and infrastructure. Despite these interventions, the refugee population suffers from a lack of access to improved water sources (Table A10).

Secondly, diversification is key to ensuring household food security for both refugee and host communities. The households that have greater food security are those that diversify their income sources, obtaining their income from various activities, such as agriculture, businesses, wage employment and so forth. Among the farmers, those who diversify the crops they cultivate tend to be more food secure. This is enhanced by the finding that shocks specific to income-generating activities, such as livestock diseases or theft of agricultural assets/output, are found to have negative consequences on food security (Table A6).

POLICY AND PROGRAMMING IMPLICATIONS

- *Improve the management of regional food stocks in order to respond to increased food demand generated by refugee populations, which would entail investments in improved food storage and distribution networks.*
- *To reinforce host community incomes and promote integration between refugee and host populations, government and aid food stocks could be produced by and purchased from farmers in the region. The most appropriate food items to be produced may be identified under the leadership of the local government production offices based on the soils and water supplies available, nutrition needs, market demand, etc.*
- *Boost the capacity for agricultural production and marketing in the host communities. In collaboration with the OPM and the district production departments, enhance access to adequate agricultural inputs, provide harmonized quality training sessions on the diversification of crops, support the development of adequate and improved local seeds and plants, and promote best practices in agricultural management and investments in agriculture. Additional investments in development of links to agricultural value chains in high demand in the refugee areas will also contribute to the same objective.*
- *Develop specific support packages for refugees that take into account the diversity of these population groups (skills, age, aspirations, opportunities, etc.), ranging from long-term social protection mechanisms for the most vulnerable who lack options to increase their resilience and self-reliance, to adapted packages that include a mix of food aid and livelihood diversification support (in the form of inputs, cash, capacity, assets, etc.), to activities targeting those who have already moved towards self-reliance and can eventually graduate from the support programme.*
- *Rationalize and increase the sustainability of delivery of basic services, aligning it with the district development plan and ensuring any long-term negative effect on the environment and development.*
- *Among the services supplied, safe water and primary healthcare are those most urgently required by refugees.*

Box 1. IPC: West Nile region

As of early 2017, in **Uganda's West Nile region** (Adjumani, Arua, Koboko, Maracha, Moyo, Nebbi, Yumbe and Zombo districts), 1.77 million people, or 63 percent of the total population, were estimated to be in **IPC Phase 1***, while an estimated 1.04 million people, or 37 percent of the population, were reportedly experiencing **IPC Phase 2** (IPC, 2017a).

However, by end-2017, with the onset of the harvest season, **82 percent of the West Nile population were considered to be minimally food-stressed (IPC Phase 1)**, leaving **13 percent of the population** in IPC Phases 2 and 5 percent in IPC Phase 3.

Box 1. **IPC: West Nile region** (cont.)

IPC noted the following key pressure points for the state of food insecurity in the West Nile region linked to the presence of refugee populations:

- **increased demand for food and services, and livelihood displacement** for host communities as a result of the overwhelming influx of refugees from South Sudan;
- **regional food stocks** under pressure;
- **pressure on the agricultural labour force**, on labour for cash opportunities in the communities; and
- **land and border conflicts** within several districts along the border with South Sudan.

* IPC Phase 1: Minimal. More than four in five households are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance. IPC Phase 2: Stressed. Even with any humanitarian assistance, at least one in five households in the area have the following or worse: Minimally adequate food consumption, but are unable to afford some essential non-food expenditures without engaging in irreversible coping strategies. IPC Phase 3: Crisis. Even with any humanitarian assistance, at least one in five households in the area have the following or worse: Food consumption gaps with high or above normal acute malnutrition; or are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps. IPC Phase 4: Emergency. Even with any humanitarian assistance, at least one in five households in the area has the following or worse: Large food consumption gaps resulting in very high acute malnutrition and excess mortality; or extreme loss of livelihood assets that will lead to food consumption gaps in the short term.

Box 2. **IPC: South Sudan**

As of September 2017, the **South Sudanese regions of Central and Eastern Equatoria**, which border Uganda, were reported to be in **IPC Phase 3 Crisis** and **Phase 4 Emergency** (IPC, 2017c). The population of Eastern Equatoria has experienced deterioration in acute malnutrition rates stemming from severe food insecurity, widespread displacement, limited access to services, high morbidity, and poor diets, sanitation and hygiene.

In late 2017, local acute malnutrition levels improved slightly because of seasonal availability of local produce, increased availability of fish and milk, and seasonal improvements in accessibility to services and markets. Although the number of individuals in Phase 4 is expected to decline further in Eastern Equatoria by March 2018 as a result of post-harvest gains, the southern area of Central Equatoria, on the border with the West Nile region of Uganda, is projected to remain in Phase 4 Emergency; however, the IPC worst-case scenario projections anticipate that the 2018 lean season (May–July 2018) may result in famine (IPC Phase 5) in multiple regions. Humanitarian assistance will be critical to the prevention of a further deterioration of current food security levels which may cause greater refugee flows into Uganda.

Box 3. EWEA: Uganda

During 2017, the FAO **Early Warning Early Action** (EWEA) team considered Uganda to be a **country 'on watch'**, indicating a deterioration of the ongoing situation with a moderate to high likelihood of having a moderate or significant impacts on food security. Northern Uganda, the area under RIMA analysis, faces two such risks to food security, namely the influx of refugees from South Sudan and below-average crop production resulting from drought (EWEA, 2017).

Host communities living in **northern districts of Uganda** have experienced worsening food security throughout 2017 because of unfavourable weather conditions. Over 70 percent of arable land was impacted by drought in the southwestern and northern districts of Uganda, leading to poor crop development and delayed harvests. Fall Armyworm (FAW) infestations impacted 60 districts and adversely affected the cereal harvest in December 2017, having already hurt yields in localized areas, particularly of maize. The confluence of these factors threatens to deliver below-average crop production. Food security may therefore worsen among households engaged in crop production as a result of reduced harvests, as well as among consumers who may face food price increases in the marketplace.

An uncertain food security situation is exacerbated by the impact of the unfolding refugee crisis, placing pressure on local resources, such as food and basic services, available to host communities. The influx of refugees may also affect host community access to land and agricultural inputs in this region. In July 2016, the Ugandan government began to allocate land to refugees for cultivation, which may generate increased competition for access to assets. Pressure on host community resources will continue to increase as long as conflict persists in South Sudan, as the numbers of refugees will inevitably continue to grow.

Refugee communities fleeing conflict also face notable risks to food security. The Ugandan government has been working to address the plight of refugees by offering access to public services in areas such as the Imvepi settlement in Arua, and by allocating agricultural land to refugees. However, access to key agricultural inputs was scarce for many refugee communities, which were unable to plant, thus leaving many refugee households dependent on humanitarian aid.

The EWEA team advocates for a number **of policy measures** to be implemented to mitigate risks posed by drought and the refugee crisis. Suggested initiatives include:

- providing **livelihood support** (such as vegetable or home-gardening cultivation kits) to refugees with access to land as well as to host communities, thereby promoting food security and reinforcing livelihoods;
- implementing **cash-for-work programmes** which help rehabilitate agriculture infrastructures and assets (such as the desilting of water catchments and construction of new valley tanks); and
- conducting an **assessment of livelihood context and situation of both host and refugee communities**.

2.3 RESILIENCE ANALYSIS

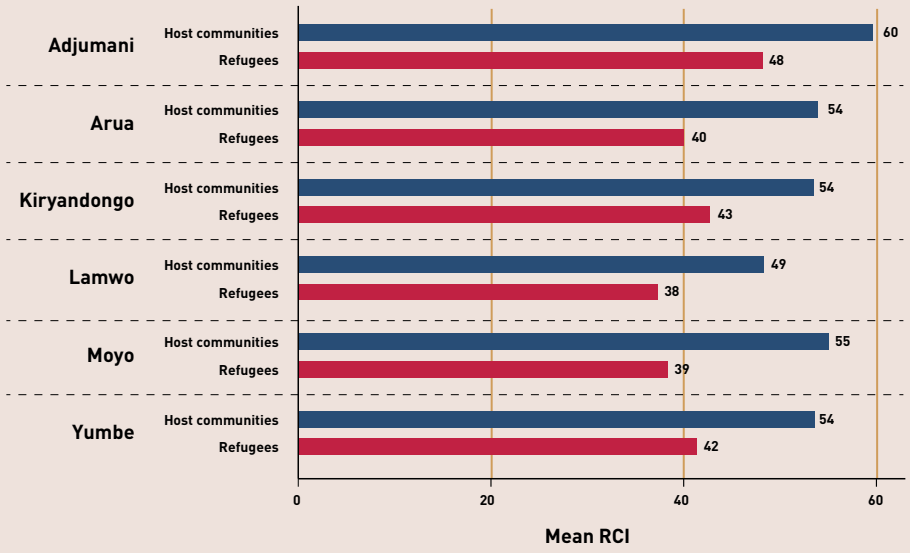
MAIN FINDING 8

Refugee households are less resilient than households living in the host communities in all the analysed districts. The former have low education levels, poor diversification of income sources, a limited number of crops cultivated and they also report a low level of productive assets, such as land for cropping and livestock.

Households living in the host communities have a greater resilience capacity than refugee households. According to the FAO-RIMA methodology, refugee households measure lower on the Resilience Capacity Index (RCI) than households in the host communities in all the districts of the analysis.[3] The FAO-RIMA methodology uses four pillars of resilience (access to basic services; asset ownership; social safety nets; and adaptive capacity) and food security indicators, to identify the mean resilience level of a population, or population sub-group; the related data are reported below in Figure 4.

The greatest divide in the resilience capacity between refugees and host communities is reported in Moyo and Arua districts (see Figure 4). Finally, the lowest resilience capacity is reported by refugee households living in Lamwo district, in the Palabeck settlement. This district also has the lowest resilience levels of the host communities.

Figure 4. **Resilience capacity by district and household type**



Source: Authors' own elaboration.

[3] The difference in the mean RCI between refugee and host communities is negative and statistically significant in all the districts covered in the analysis.

Further analysis of the correlation between the RCI mean values and the observed characteristics of the pillars of resilience, further substantiate this discrepancy. The detailed correlation analysis can be seen in Figures A3-A12 in Annex II.

Refugee households have low adaptive capacity, the most important component of resilience (followed by assets, social safety nets and access to basic services), compared to households living in the host communities. Adaptive capacity plays a relatively smaller role in explaining the resilience level for refugee households in Adujumani, Arua and Lamwo districts (Figure A8).

The main factors driving the difference in resilience capacity between refugee and host communities are education level, diversification of income sources, number of active household members and number of cultivated crops (Table A10).

One of the factors explaining the low adaptive capacity is the lower level of human capital. The members of refugee households have fewer years of formal education than host household members living near the settlements. This may be only partially explained in part by the fact that refugee households have more children than households in host communities, and therefore the average education level is lower for refugee households than host households.

Furthermore, refugee households have a low number of household members of working age and, generally, can rely on fewer sources for generating their income. Low human capital combined with a relatively young age of refugee household members, many of whom are below working age, make it difficult for households to undertake income-generating activities.

Taylor *et al.* (2016) argues that the South Sudanese refugees derive a smaller fraction of their income from productive activities, which is substantiated by Figure 5, showing the percentage of households relying on the different sources of income by household type (refugees and host communities) and by low versus high resilience capacity.[4] For those with higher resilience levels, income is more diversified and the dependence on assistance is less, though still high. The majority of refugee households rely on transfers, both the least (76%) as well as the most resilient (86%). They mainly rely on relief food (70 percent of the least resilient households and 68 percent of the most resilient households) as formal assistance. Interestingly, the most resilient households receive, in greater proportion with respect to the least resilient refugees, cash assistance (13 percent versus the 3 percent of the least resilient households) and livestock (3 percent versus the 1 percent of the least resilient households). Even among the most resilient, the percentage of households relying on non-productive activities is very high. In contrast, host communities mainly rely on wage employment.[5]

Both productive and non-productive assets are important contributors to the resilience of households living in the host communities. In fact, assets (AST) form the second-most important pillar in contributing to their resilience (Figure A3). Refugees are (significantly) worse off than hosts in all aspects of asset ownership (as shown in Table A10), including wealth, agricultural assets, access to land and Tropical Livestock Units [6](TLU).

The Ugandan Refugee Strategy responds to this by allocating land (a highly productive asset) to refugees; in no other country are refugees assigned a plot for settling and engaging in

[4] The first column of Figure 5 compares the sources of income of the most and least resilient refugee households; the second column compares sources of income of the most and least resilient host households; the first row compares the sources of income of the least resilient refugee and host households; and the second row compares the sources of income of the most resilient refugee and host households.

[5] The percentage of households by assistance type is not represented in Figure 5.

[6] TLUs are livestock numbers converted to a common unit, and indicate the number of livestock owned by the household as well as the diversity in animal type.

agriculture on arrival. In Uganda, the plot is expected to enable refugees to start a livelihood and put to use the agricultural skills they already have, thus contributing to their food security and progressing toward self-reliance. However, the strategy is under pressure. With the number of refugees increasing, the average size of the plots is decreasing, thus affecting how much agricultural production can contribute to resilience and food security. Their asset base is in some cases therefore negligible; weather conditions, difficult access to water for agriculture and the relatively infertile areas where the settlements are often established, further reduce the contribution of the plots to the refugees' resilience.

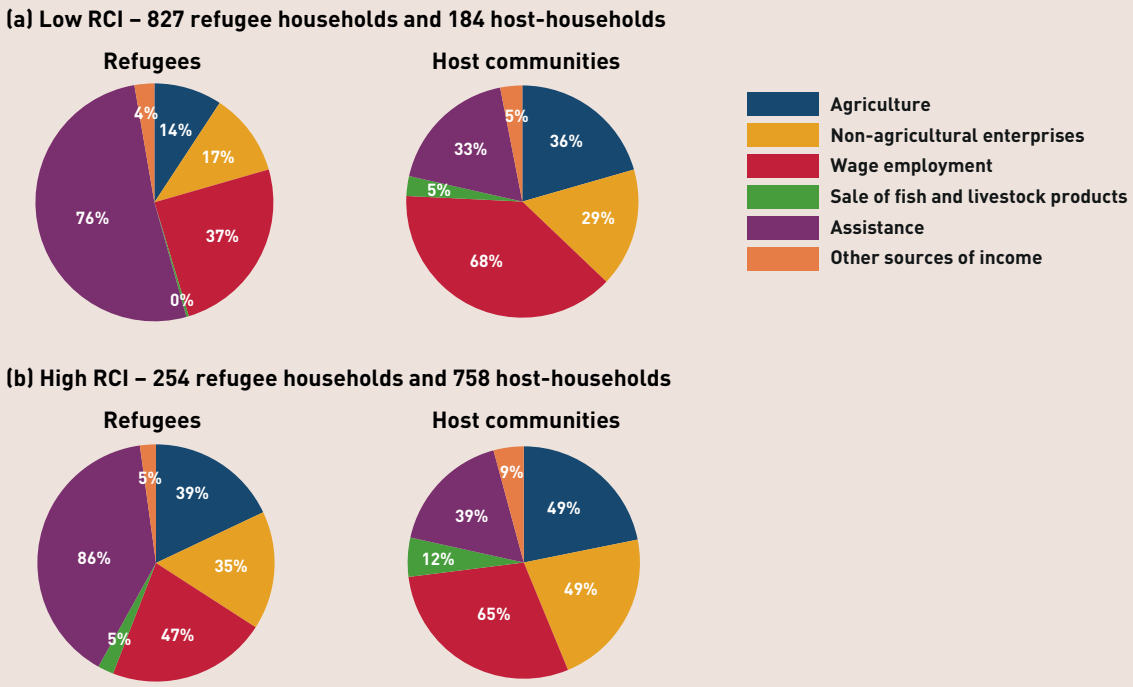
Livestock ownership, another productive asset also traditionally used as savings (and thus insulation from shocks), is limited. Refugee households report on average less than one TLU, while the households living in the host communities report 1.6 TLU. This is particularly critical since the refugees from South Sudan have extensive experience in pastoralism, and it is linked to the many challenges that exist in Uganda related to accessing land and water for cattle keeping, and accessing vaccinations which are mandatory in Uganda (South Sudan is still affected by cattle diseases that have been eliminated in Uganda).

For refugee households, land for cropping and TLU have a low contribution to resilience capacity (Figure A5); specifically in Yumbe, Lamwo and Moyo (Figure A10), where some of the newly established and more densely populated settlements are located.

POLICY AND PROGRAMMING IMPLICATIONS

- *Given that access to land is so important for resilience, and is in fact a limiting factor for refugees, the productive outputs of that small plot of land must be maximized through soil fertility improvements and other actions.*
- *Improving education levels among the refugee population is crucial to enhancing their resilience capacity. This should be reinforced at two levels: adults and children. Firstly, adults could receive basic educational training that would equip them with the skills to better navigate the basics of their area of economic activity, which would entail functional adult literacy. Secondly, access to education could be facilitated by i) providing small cash transfers to families sending children to school (small amounts that could help make up for lost income from child labour); ii) subsidizing access to school supplies and fees; and iii) developing school meal programmes to minimize the cost of feeding children at home.*
- *Interventions should enhance access to cropping land and to drought-resistant livestock for refugees and increase tenure security. This could be accomplished by encouraging pooling, renting and casual labour on larger farms (generally, land is not a limiting constraint in the north, whereas access to labour is, as household labour is not sufficient to tend to more than perhaps two hectares) and increasing tenure security for the landlords (hindering them from renting it out).*

Figure 5. **Income sources by household type and resilience capacity index (percentage of households relying on different source of income)**



Source: Authors' own elaboration.

MAIN FINDING 9

Adult male-only households are less resilient than adult female-only ones, or those with both female and male adults. The adult male-only households tend to have a much lower adaptive capacity, fewer safety nets, lower expenditures on food and lower dietary diversity.

Women fulfil multiple household responsibilities; the results confirm their essential contribution to food security, nutrition and children's primary caregiving.

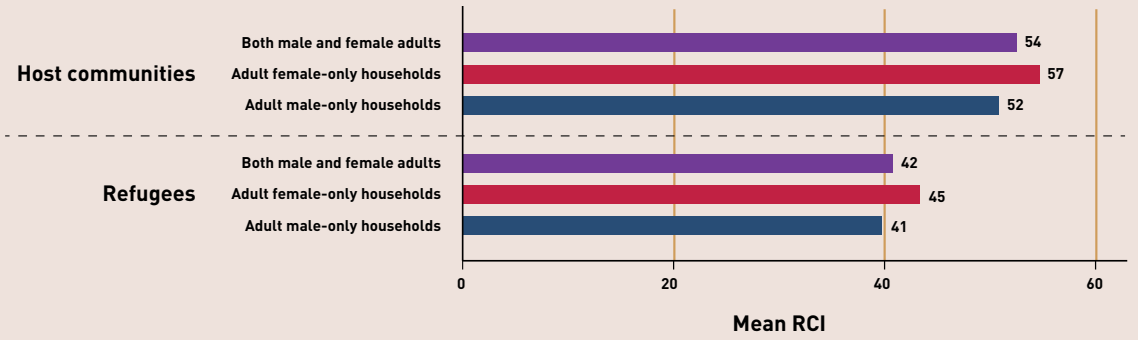
In order to go beyond the limitations of the household-head concept, the households have been classified within three groups: i) households composed of only male adult members[7] (with or without children), ii) households with only female adult members and iii) households with at least one male and one female member. The results show that the adult male-only households make up 22 percent of the refugee households and 7 percent of the host communities. Female-only households, on the other hand, constitute only 2.5 and 2 percent, respectively.

The resilience analysis shows that the refugee households with only male adults are significantly less resilient than other types of households (Figure 6). They are less endowed as compared to the female-only households in all dimensions defining resilience, except assets.

[7] A member of the household is considered adult when aged 15 and above.

Moreover, adult male-only households spend less money on food, and consequently have lower caloric consumption and dietary diversity scores. These results are particularly worrisome if we consider that 93 percent of these male adults have at least one child. They also confirm the existing literature which finds that women tend to spend their income on food, healthcare and children's education, while men usually spend more of their income on personal items.

Figure 6. **Resilience capacity by a gender perspective**



Source: Authors' own elaboration.

POLICY AND PROGRAMMING IMPLICATIONS

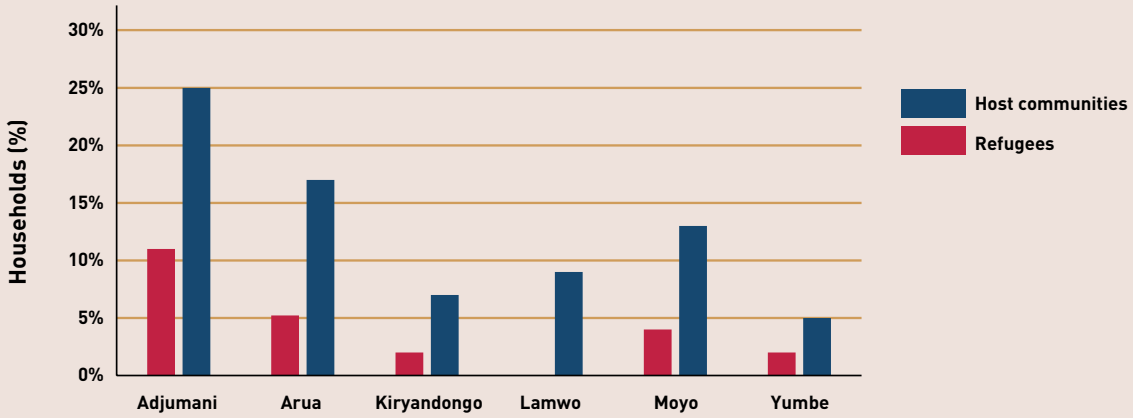
- *Pay particular attention to adult male-only households during the targeting of refugee communities.*
- *Develop nutrition education projects that target both men and women as well as school feeding projects.*
- *It is essential that women's contribution to food security and nutrition is acknowledged, and barriers to gender equality are tackled through an enabling policy and legal environment.*

MAIN FINDING 10

In terms of social safety nets, the hosting households mainly count on credit and associations, while refugees count on formal transfers.

The safety nets of the host communities are mainly determined by access to credit and their participation in different types of associations. The divide in the access to credit between refugee and host communities' households is reported in all of the districts covered by the analysis (Figure 5). Access to credit by refugee households is particularly critical in Lamwo district.

Figure 7. **Percentage of refugee and host communities' households with access to credit**



Source: Authors' own elaboration.

Conversely, the formal transfers received by refugee households contribute to their resilience capacity. An important role is also played by informal transfers (Figure A6).

Refugee populations living in northern districts of Uganda are heavily supported by transfer programmes funded by national and international organizations. Additionally, the donor agencies pledged strong investment in maximizing the impact of the humanitarian support. As an example, in the Bidi Bidi settlement, many humanitarian organizations have collaborated with mobile network operators in order to use mobile money technology for the transfer of cash to refugees. The aim of shifting from in-kind to digital aid is to empower beneficiaries, increase opportunities for the financial inclusion of refugees and boost local markets by encouraging refugees' expenditures (Casswell and Frydrych, 2017). However, characteristics determining the local systems (the capacity of the local system to increase the supply of goods, inflation effects, presence of policy interventions and so on) can negatively influence the benefits derived from increased purchasing power in the communities.

Among the refugee population, the transfers are mainly received by female-headed households, which account for 52 percent of refugee households (the totality of these are de jure female-headed households, namely widows, divorced or separated women), whereas only 20 percent of the interviewed households in the host communities are headed by women. The female-headed refugee households are those receiving the greater amount of both formal and informal transfers.[8] Furthermore, the largest amount of transfers – especially informal ones – is received by female-headed refugee households with numerous children.[9]

[8] Among the refugee sample, the mean value of formal transfers received by male-headed households is USD 19, while the mean value received by female-headed households is USD 21. The mean value of informal transfers is USD 4 for male-headed households and USD 5 for female-headed households.

[9] Among the refugee female-headed households, the correlation between the amount of transfers and the number of children in the households is 0.17 for the formal transfers and 0.08 for informal transfers.

POLICY AND PROGRAMMING IMPLICATIONS

- *Facilitating access to credit and participation in associations is a key element in increasing refugees' resilience capacity. Positive spillovers can emerge by integrating skill development programmes and access to credit and investment for refugees.*
- *Given the dependence of refugee populations on transfers, training programmes could be designed to advise refugees on methods of investing their transfer funds and diversifying their income sources.*
- *Ensure targeting of transfers to the most vulnerable households, to close the gender gap.*
- *Support efforts for regular pulling of financial resources under village savings and loan associations to support small business development among women and youth groups, and in the process, establish mechanisms for peace consolidation and conflict mitigation.*

MAIN FINDING 11

The resilience capacity of households in the host communities is mainly threatened by natural shocks, such as drought, water shortage and fire, while the refugees' resilience is mainly reduced by the income earner's falling ill. Conversely, the high cost of agricultural inputs increases the resilience of host communities.

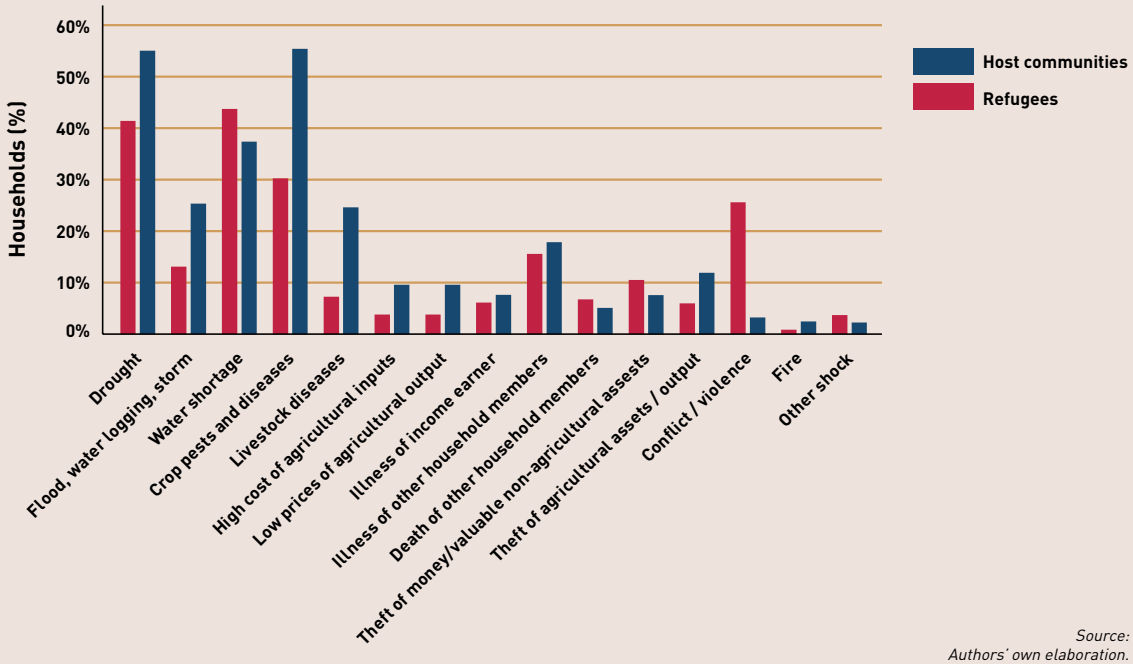
Based on self-reported information, drought, crop pests and diseases, and water shortages are the shocks that affected the interviewed households most frequently in the past year (Figure 7). While the first two shocks mainly affected households living in the host communities, water shortages were experienced by more than 40 percent of refugee households. Additionally, unusually high levels of livestock diseases were reported among the host communities, and of episodes involving conflict and violence among the refugee population. Finally, in both samples of household types, the illness of household members is also reported as a frequent shock.

Natural shocks, such as drought, water shortage and fire, affect the resilience of households in the host communities (Table A5). This may be explained by the fact that households in the host communities are more dependent on traditional sources for income generation. In contrast, for the refugee households, the most relevant shocks are the income earner falling ill and other types of shocks not included in the list (Table A5). The fact that the illness of household members compromises the household resilience capacity may be linked to the fact that refugees rely on fewer household members and income sources to generate income.

There is a clearly negative impact on host communities from theft of agricultural assets/outputs. This link needs further investigation (Table A5). Conversely, the presence of high prices of agricultural inputs increases the resilience capacity of households living in the host communities. This can be explained by the fact that households in host communities are mainly net sellers of agricultural inputs (such as multiplied seed), while refugee households are mainly net buyers.

Finally, for both refugees and host communities, the presence of a high number of children (under 15) decreases the household resilience capacity. The FAO-RIMA methodology estimates resilience capacity based on the current household characteristics. A proper dynamic analysis would also take into consideration the return from investments in the education of the household's children.

Figure 8. **Percentage of refugee and host communities' households reporting shocks**



Source: Authors' own elaboration.

POLICY AND PROGRAMMING IMPLICATIONS

- *Awareness-raising and capacity-building initiatives are expected to strengthen natural resource management to prevent those shocks, and to limit the effects of shocks. This could include educating recipients on how to mitigate risk by diversifying crops and investing in varieties that are more resistant to risks such as drought, heat or flooding.*
- *Mechanisms for disease and infection prevention should target the refugee population.*
- *Establishment of small-scale irrigation systems, such as valley dams in water catchment areas, to provide water for production.*

2.4 SOCIAL CAPITAL, SUBJECTIVE RESILIENCEAND THE POWER OF ASPIRATIONS AND COVERAGE

MAIN FINDING 12

*Refugee households **perceive** themselves to be more resilient. In contrast, host communities report lower levels of perceived resilience. More generally, those who have already experienced shocks perceive themselves as more resilient.*

Subjective resilience is the capacity to cope with shocks and stressors which household members attribute to their selves. This information is based on a module developed by FAO in collaboration with the Overseas Development Initiative (ODI). Two indicators of subjective resilience have been calculated from the module: one is based on a set of questions regarding a generic shock/hardship (for example, "My household can bounce back from any challenge that life throws at us"), while the other specifically refers to drought (for example, "If a severe drought occurred tomorrow, my household would be well-prepared in advance"). Table A11 reports all the questions employed in the estimation of the two indicators.

Contrary to the differences in the RCI between refugee and hosting households, the former perceive themselves as being more resilient, as compared to the degree to which host households do (Table A11).

Furthermore, the experience of some specific shocks – such as pests, parasites and diseases, livestock diseases, deaths of household members and other type of shocks – increases the sense of subjective resilience. This may be explained by a higher self-esteem based on past experiences. The more the household has experienced past shocks, the more it perceives itself to be able to deal with hardships.

Additionally, those who are more exposed to risk in agriculture, with a high number of crops, perceive themselves as less resilient. On the other hand, those participating in associations may perceive themselves as less resilient. Table 3 shows the percentage of refugee households and host households participating in the different types of associations.

Table 3. **Association participation by household type (percentage)**

Households participating in associations	Refugees	Host community
Agricultural cooperation	2.69	1.89
Farmers' group	22.55	21.86
Livestock association	0.82	1.82
Savings & credit cooperative	13.61	40.92
Business association	2.28	2.42
Women's group	11.21	9.23
Farmer Field School (FFS)/Pastoral Field School (PFS)	1.40	1.66
Youth group	6.07	4.16
Community police/Watch group	1.64	1.29
Cultural group	4.21	6.88
Other networks	1.46	1.21

POLICY AND PROGRAMMING IMPLICATIONS

- *Support people with adequate social and agricultural insurance mechanisms to enhance the ability of households to cope with shocks.*
- *They are probably enrolling into these programmes chiefly because they feel that they will not be able to cope with shocks. Support their affiliation and help build self-esteem.*

3 METHODOLOGY AND COVERAGE

This section introduces the ad-hoc dataset employed in the analysis and complementary data and information from additional sources

This report employs data and information from a number of different sources. The findings come from the most up-to-date **IPC** and **EWEA analyses** on northern Uganda and South Sudan; as well as from food security and resilience analyses based on **data collection**. The latter has been implemented in six districts of northern Uganda during November and December 2017, under the coordination of the RMU. The data collection comprises a household level survey and a community survey, conducted in both refugee settlements and hosting communities.

The sample of the **household survey** is composed of 3 034 households, including both the refugee population as well as host communities (Table 4). The focus is on the seven settlements where the South Sudanese refugees are living, as well as nearby host communities. Following discussions with the Uganda Bureau of Statistics (UBOS), FAO Uganda and local partners, cluster sampling approach was adopted. The primary sampling units (PSU) are the single settlement or village. Households are the Second Sampling Unit (SSU); these are randomly selected from either a list of households provided by the local authority or by walking through the village or settlement. The sample is representative at district and settlement levels.[10]

[10] The sample size is determined based on power of design, which, in addition to taking into account the size of the population, uses the estimated impact we expect to see based on previous exercises (e.g. FAO 2016a), the standard deviations on the main indicator of interest (FAO-RCI), as well as measures to reduce possible estimation errors. The sample size has been calculated in order to be able to detect a minimum impact of 10 percent, with a 95 percent level of confidence. Other assumptions include (i) a null expectation in differences between the two populations (refugee/host) at the beginning, but possibly seeing one over time; (ii) a correlation between the resilience capacity between the two groups of 0.4 and 0.5; (iii) differences in the standard deviations between the two groups, i.e. more homogeneous characteristics amongst the host communities than the refugees; and (iv) intra-cluster correlation. This estimation was done at both settlement and district level clusters. The 20 percent oversampling was added at settlement level, to account for the expected fluid nature of refugee status. Thus a total sample size 2 900 was required and sampled and 3 034 interviews were carried out.

Table 4. **Interviewed households by settlement**

Settlement	Interviewed households			Total household number
	Refugees Camps	Host Community	Household per site	
Bidibidi	290	240	530	76 846
Palorinya	200	166	366	27 358
Adjumani	200	153	353	89 625
Palabeck	200	166	366	18 000
Imvepi	208	199	407	64 946
Rhinocamp	289	196	485	40 988
Kiryandongo	352	202	527	40 797
Total	**1 712**	**1 322**	**3 034**	**35 8560**

The **household questionnaire** used to carry out the household survey was developed by FAO in collaboration with UBOS, UNICEF, WFP, the Lutheran World Federation, Save the Children and Makerere University. The questionnaire benefitted from inputs and comments from different stakeholders and was piloted in Adjumani in November 2017, for the purposes of which specific training was carried out for the enumerators responsible for interviewing the households.

The household questionnaire is comprised of several thematic sections. Specifically, it collected information on (1) socio-demographic characteristics of households; (2) food security, including a detailed food consumption module, and well-being; (3) shocks, assistance, perceived resilience capacity, coping strategies and aspirations; (4) access to basic services; (5) employment; and (6) agricultural and livestock production, comprising questions regarding land for which the household has ownership or only user rights .

The fieldwork was implemented from 20 November to 22 December 2017, by 50 enumerators organized within seven teams under the supervision of eight experienced FAO staff. The data collection was achieved by employing Computer Assisted Personal Interviewing (CAPI) technologies and digital tablets when conducting the interviews. These technologies reduce the duration of the interview; limit errors during both the interview and data entry phases; and allow for the collection of Geographic Information System (GIS) information at the household level. The data were transmitted daily through Kobo Toolbox, allowing for remote data control protocols.

A **community qualitative survey** has been implemented in the same areas (settlements and host communities) of the household survey, with interviews of communities conducted by the same above-mentioned teams of enumerators (Table 5). For the qualitative community survey, Focus Group Discussions (FGDs) have been employed and the information collected made use of paper questionnaires.

Table 5. **Interviewed communities by settlement**

Settlement	Team size	No. of FGDS	Refugees	Hosts
Imvepi	6	6	3	3
Rhino camp	8	8	4	4
Moyo	6	6	3	3
Kiryandongo	8	8	4	4
Adjumani	6	6	3	3
Bidi Bidi	8	8	4	4
Lamwo	6	6	3	3
Total		**48**	**24**	**24**

The **community questionnaire** covers the same topics treated in the household questionnaire: (1) socio-demographic characteristics at the community level; (2) well-being; (3) shock, insecurity and assistance; (4) access to facilities and markets; (5) livelihood; and (6) agricultural/livestock production and land use. Therefore, the information collected from the household and from the community questionnaires can supplement each other and be integrated.

To complement other indicators of the food security analysis, the **FAO-FIES** has been employed (Ballard *et al.*, 2013). Details on the methodology can be found in Annex I.

The resilience analysis has been conducted by employing the **FAO-RIMA-II approach** (FAO, 2016a). As described in detail in Annex II, the RIMA approach estimates the so-called pillars of resilience (ABS, AST, SSN and AC) and the Resilience Capacity Index (RCI) by employing latent variables statistical techniques. Regression models are employed for testing the effects of shocks and the determinants of food security.

Box 4. **Resilience Index Measurement and Analysis (RIMA)**

The RMU has endorsed FAO's Resilience Index Measurement and Analysis (RIMA) as the main tool for conducting the required analytical work to inform decision-making on resilience-building initiatives.

The RIMA tool estimates household resilience to food insecurity. It is a quantitative approach that explains why and how some households cope with shocks and stressors better than others. The RIMA methodology provides evidence for more effective design, delivery, and monitoring and evaluation assistance to vulnerable populations, targeting their priority needs.

In 2017, RIMA was applied to analyse resilience and to assess the impact of programmes on resilience capacity in Karamoja region (Uganda).

4 NEXT STEPS

This section focuses on the use of the report for programming

This data collection was initiated to provide the Government of Uganda and its partner with a common framework for the assessment and future monitoring of refugees' and host communities' resilience. In order to ensure wide uptake and effective use of the research, the questionnaire was compiled in collaboration with a wide cross section of partners at the local and national level, the emerging results were widely disseminated and feedback was included in the final report. All the data is available for any partner to access and use, and additional analysis can be performed on specific data as required.

The report will be widely disseminated; it will inform the way forward for resilience building for refugees and host communities and will be used as a baseline by the Government and its partners.

FAO is using the research findings and recommendations to define a strategy for engagement in refugee response and develop a programme for action.

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ANNEX I
FOOD SECURITY

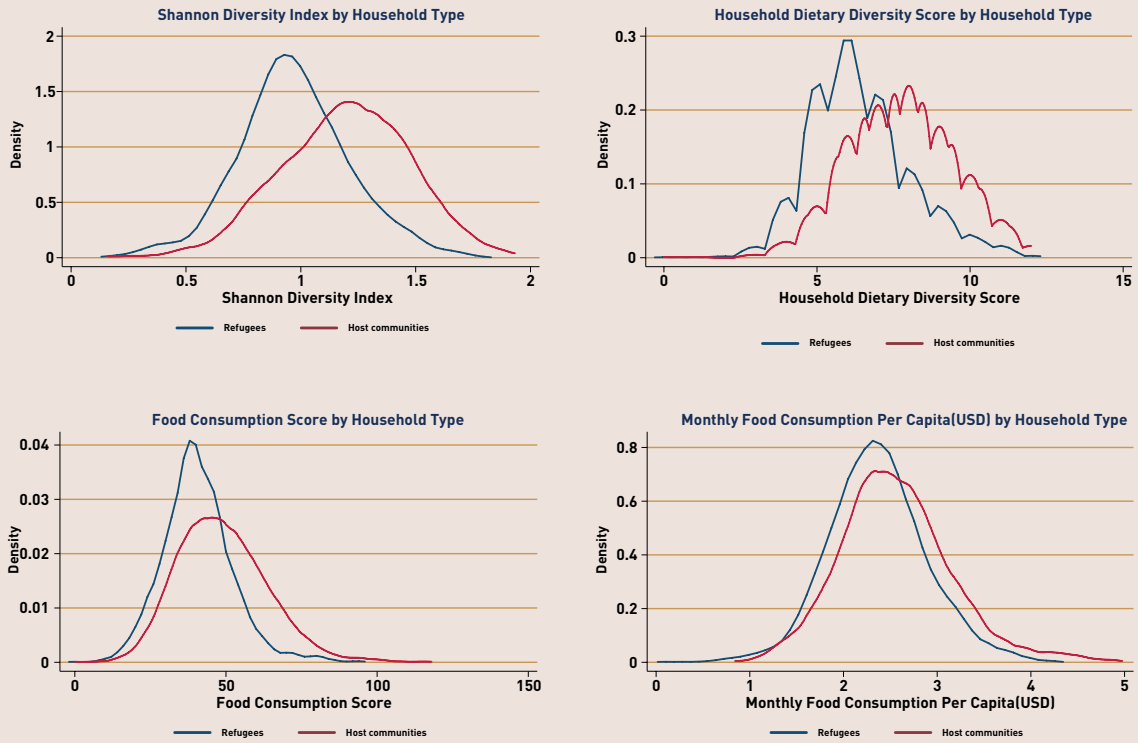
FOOD SECURITY INDICATORS

Table A1. **Food security indicators (mean values) by household type**

Variable	Refugee	Host communities	Refugees-Host communities
Caloric intake per capita	1 603.234	1 614.692	-11.458
Shannon index	0.970	1.195	-0.225***
Simpson index	0.519	0.604	-0.084***
Food Consumption Score	40.670	48.831	-8.161***
Household Dietary Diversity Score	6.394	7.769	-1.375***
Monthly food consumption per capita (USD)	11.257	14.975	-3.718***
Monthly food expenditure per capita (USD)	1.432	5.308	-3.876***
Monthly food from own production per capita (USD)	2.015	8.922	-6.907***
Monthly food from assistance per capita (USD)	7.430	0.377	7.053***

*T-test on the mean difference between refugees and host communities. *** p<0.01, ** p<0.05, * p<0.1.*

Figure A1. **Food security indicators by household type**



Source:
Refugee and Host Community Baseline Survey (2017).

Table A2. **Food security indicators (mean values) by household type and district**

Variable	Refugee	Host communities	Refugees-Host communities
Adjumani			
Caloric intake per capita	1 397.867	1 580.144	-182.277**
Shannon index	1.149	1.307	-0.158***
Simpson index	0.593	0.665	-0.072***
Food Consumption Score	40.235	44.945	-4.710***
Household Dietary Diversity Score	6.745	7.351	-0.606***
Monthly food consumption per capita (USD)	12.827	24.951	-12.124***
Monthly food expenditure per capita (USD)	1.998	4.741	-2.743***
Monthly food from own production per capita (USD)	2.866	15.934	-13.067***
Monthly food from assistance per capita (USD)	4.779	0.401	4.378***

Table A2. **Food security indicators (mean values) by household type and district (cont.)**

Variable	Refugee	Host communities	Refugees-Host communities
Arua			
Caloric intake per capita	1 588.388	1 742.387	-153.999***
Shannon index	0.940	1.158	-0.218***
Simpson index	0.523	0.602	-0.079***
Food Consumption Score	41.262	53.584	-12.322***
Household Dietary Diversity Score	5.940	7.645	-1.705***
Monthly food consumption per capita (USD)	12.471	17.407	-4.936***
Monthly food expenditure per capita (USD)	1.247	6.074	-4.827***
Monthly food from own production per capita (USD)	1.398	10.985	-9.588***
Monthly food from assistance per capita (USD)	9.964	0.333	9.631***
Kiryandongo			
Caloric intake per capita	1 762.580	1 626.633	135.947**
Shannon index	0.982	1.212	-0.230***
Simpson index	0.504	0.576	-0.072***
Food Consumption Score	44.514	49.460	-4.946***
Household Dietary Diversity Score	6.886	8.303	-1.417***
Monthly food consumption per capita (USD)	10.383	12.379	-1.996***
Monthly food expenditure per capita (USD)	2.227	5.824	-3.597***
Monthly food from own production per capita (USD)	3.038	6.351	-3.313***
Monthly food from assistance per capita (USD)	4.807	0.486	4.321***
Lamwo			
Caloric intake per capita	1 391.409	1 490.021	-98.612*
Shannon index	0.899	1.094	-0.195***
Simpson index	0.480	0.564	-0.084***
Food Consumption Score	35.858	41.941	-6.083***
Household Dietary Diversity Score	6.185	7.311	-1.126***
Monthly food consumption per capita (USD)	8.531	9.791	-1.261**
Monthly food expenditure per capita (USD)	1.034	3.964	-2.930***
Monthly food from own production per capita (USD)	2.397	5.365	-2.968***
Monthly food from assistance per capita (USD)	5.139	0.608	4.531***
Moyo			
Caloric intake per capita	1 777.186	1 652.113	125.073**
Shannon index	0.926	1.226	-0.299***
Simpson index	0.502	0.609	-0.107***
Food Consumption Score	35.515	44.250	-8.735***
Household Dietary Diversity Score	6.020	7.723	-1.703***
Monthly food consumption per capita (USD)	8.346	13.609	-5.263***
Monthly food expenditure per capita (USD)	0.727	5.273	-4.546***
Monthly food from own production per capita (USD)	1.778	8.259	-6.481***
Monthly food from assistance per capita (USD)	5.952	0.267	5.685***
Yumbe			
Caloric intake per capita	1 617.853	1 471.786	146.067**
Shannon index	0.965	1.217	-0.252***
Simpson index	0.518	0.613	-0.094***
Food Consumption Score	42.521	50.667	-8.146***
Household Dietary Diversity Score	6.783	8.138	-1.355***
Monthly food consumption per capita (USD)	12.963	11.120	1.843**
Monthly food expenditure per capita (USD)	1.227	4.887	-3.660***
Monthly food from own production per capita (USD)	1.240	5.983	-4.743***
Monthly food from assistance per capita (USD)	10.452	0.263	10.189***

*T-test on the mean difference between refugees and host communities. *** p<0.01, ** p<0.05, * p<0.1.*

FOOD INSECURITY EXPERIENCE SCALE (FIES)

The FIES module (Ballard et al., 2013) has been administered at household level, with a one-month reference period. The module consists of eight questions (or items) regarding access to adequate food. The Rasch model has been applied to the FIES data in order to statistically validate the data and obtain the household probabilities of experiencing food insecurity above a specific level of severity. Two thresholds are used to classify households as (i) moderate to severe food insecure or (ii) severe food insecure. Thresholds are set in order to produce internationally comparable prevalence rates of food insecurity (FAO, 2016b), and correspond to the adjusted severity of the items "Ate less" (for moderate to severe) and "Whole day without eating" (for severe) of the FIES 2014-2016 global standard.

The application of the Rasch model confirmed the good performance of the FIES in this application.[11] In particular:

- All items contribute equally to the measure of food insecurity (Rasch infit statistics are in the range of 0.8-1.1).
- The overall model fit is good (Rasch reliability equally weighted is equal to 0.75).
- The scale is unidimensional (all residual correlations between items are below 0.25 in absolute value).

According to the FIES, 89 per cent of refugee households in this application[12] have experienced food insecurity (moderate and severe), versus 71 per cent of households in the host communities. Focusing on the households experiencing severe food insecurity, the difference between refugee and host communities is confirmed: while only 18 per cent of households in the host communities are severely food insecure, the percentage is higher (32) for the refugee households.[13]

The FIES gap between refugees and host communities is confirmed in all the districts covered. In Adjumani, the difference in food security between refugees and host communities is the most pronounced. This is valid for both the FIES thresholds (moderate to severe; and only severe). In contrast, the difference in the (moderate to severe) food security levels between refugees and host communities is less pronounced for the households living in Yumbe and Arua districts.

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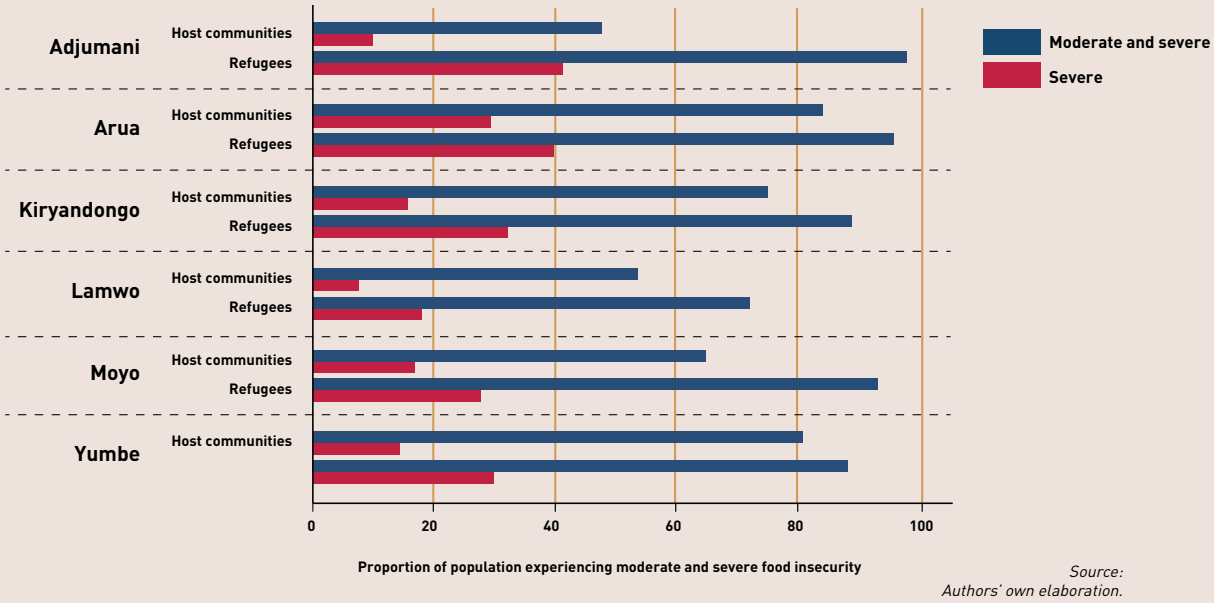
[11] Compared to the FIES 2014-2016 global standard, only one item ("Worried") was considered 'unique' (i.e. estimated to have a different severity in this application versus the median severities of the same item in more than 150 countries in the world). Specifically, this item was estimated to be more severe in this application than in the FIES global standard. This disparity can possibly be attributed to a characteristic of the population of northern Uganda, where people are likely to worry only after having already reached reduced food variety and quality. This peculiarity is taken into account when calibrating the thresholds and the metric is therefore based only on the remaining seven items.

[12] All prevalence rates presented in this report are unweighted and refer to the sampled population only.

[13] The comparison between the prevalence rates in refugee and host community households has been performed without allowing for possible differential item functioning (DIF) in the two contexts, i.e. using parameters from the total sample and changing only the frequency distribution by raw score. Exploration has been made by allowing DIF in the two contexts. In this case, one item ("Few kinds of food") has been found to be estimated slightly less severe in refugee households as compared to host community households. By taking this different behaviour into consideration, prevalence rates are minimally affected. For this reason, we can base our estimates on the total sample parameter estimates.

According to the FIES, minor differences are detected in the food security levels of refugee households by comparing households that arrived in Uganda either more or less than a year ago. The difference in the FIES (moderate to severe food security levels) of refugee households that arrived either more or less than a year ago is *-2.675 (Pr|T|>|t|=0.0171)*. The difference in the FIES (severe level) of refugee households that arrived either more or less than a year ago is *-4.189 (Pr|T|>|t|=0.0021)*.

Figure A2. **FIES by district and household type**



Source: Authors' own elaboration.

ANNEX II
RESILIENCE MEASUREMENT

Following the RIMA-II approach (FAO, 2016a), the estimation of the RCI is based on a two-stage procedure.

1. First, the resilience pillars are estimated from observed variables through Factor Analysis (FA). The definition of each pillar of resilience and the related variables are reported below in Table A3.
2. Second, the RCI is estimated from the pillars, taking into account the indicators of food security using the Multiple Indicators Multiple Causes (MIMIC) model. The food security indicators are considered outcomes of resilience.

After estimating the pillars, the RCI is jointly estimated through its pillars and by taking into account the food security indicators. The results of the MIMIC model are shown in Table A4. The model presents a good fit to the data; all the pillars' coefficients are positive and statistically significant.

After estimating the RCI, a min-max scaling is used to transform the RCI value into a standardized index, ranging between 0 and 100. The linear scaling is based on:

$$RCI^{*} = (RCI - RCI_{min}) / (RCI_{max} - RCI_{min}) \quad (1)$$

The descriptive resilience analysis provides a description of household resilience capacity; it estimates the RCI and RSM. The latter shows the correlation between the RCI and the pillars and between the observed variables and the pillars. Figure A3 shows the correlations between the RCI and the pillars by household type. Figures A4 to A7 show the correlations between the resilience pillars and the observed variables by household type.

To investigate the association between shocks and the RCI, the following regression model is employed:

$$RCI_h = \alpha + \beta \boldsymbol{S}_h + \delta \boldsymbol{X}_h + \varepsilon_h \quad (2)$$

where $\boldsymbol{S}_h$ are dummy variables for self-reported shocks at the household level; $\boldsymbol{X}_h$ are control characteristics; ε_h is the error term and RCI_h is the rescaled (0-100) RCI estimated through the RIMA-II model.

In order to study the determinants of the food security indicators employed for estimating the RCI, the following OLS model is adopted:

$$FS_h = \alpha + \beta \boldsymbol{R}_h + \delta \boldsymbol{X}_h + \varepsilon_h \quad (3)$$

where $\boldsymbol{R}$ is a vector of all variables employed for estimating the resilience pillars, $\boldsymbol{X}$ is a vector of household control characteristics, which includes district dummies, and ε is an error term. Three different models are estimated, one for each of the following food security indicators: food consumption per capita, Shannon diversification index and FCS.

Table A3. Variables employed in the RIMA-II model

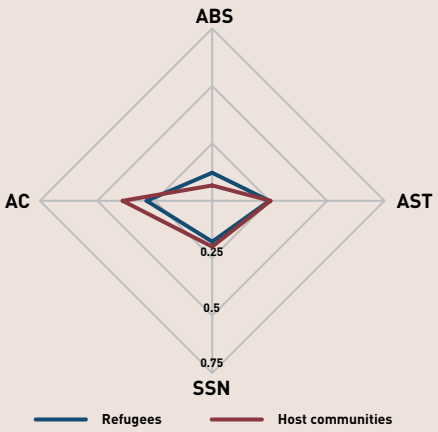
Pillar	Variable	
Access to Basic Services (ABS): Ability of a household to meet basic needs, by accessing and effectively using basic services, such as sending children to school; accessing water, electricity and sanitation; selling products at the market.	Improved sanitation	Variable indicating access to improved toilet facility (covered pit latrine private, private ventilated improved pit latrine and private flush toilet).
	Improved water	Variable indicating access to an improved water source (piped dwelling, piped public tap, protected shallow well, borehole, protected spring and roof rain water).
	Closeness to primary school	Index of closeness to primary school ranging between 0 (no access) and 1 (minimum distance in kilometers).
	Closeness to hospital	Index of closeness to hospital/health facility ranging between 0 (no access) and 1 (minimum distance in kilometers).
	Closeness to livestock market	Index of closeness to livestock market ranging between 0 (no access) and 1 (minimum distance in kilometers).
	Closeness to agricultural market	Index of closeness to agricultural market ranging between 0 (no access) and 1 (minimum distance in kilometers).
	Closeness to petty trading market	Index of closeness to petty trading market ranging between 0 (no access) and 1 (minimum distance in kilometers).
Assets (AST): Assets, both productive and non-productive, are the key elements of a livelihood, since they enable households to produce and consume goods.	Wealth index	The wealth index is created through FA. A list of variables assumes a value of 1 or 0 is used, depending on whether or not a household has specific non-productive assets, such as a radio, lamp, mobile, bicycle, table, chairs, bed, hand mill, mattress, solar panel, water tank or jerry cans.
	Agricultural asset index	The agricultural asset index is created through FA. A list of variables assumes a value of 1 or 0 is used, depending on whether or not a household has specific productive assets, such as an axe, plough, hoe, sickle, rake, cart, ox plough and other assets.
	TLU	TLU standardizes different types of livestock into a single unit of measurement. The conversion factor adopted is: 0.7 camels; 0.5 cattle; 0.3 donkeys /mules; pigs 0.2; 0.1 sheep/goats; and 0.01 chickens.
	Land	Total area (acres) employed for crop production.
Social Safety Nets (SSN): Capacity of the household to access formal and informal assistance from institutions, as well as from relatives and friends.	Participation in associations	Dummy variable for participating in associations.
	Credit (value) per capita	Total amount (USD) of loans received in the last month.
	Past credit (value) per capita	Total amount (USD) of loans contracted before the last month.
	Formal transfers (value) per capita	Total amount (USD) of formal transfers received in the last month. They include cash for work programmes, relief food carried out by non-governmental organizations (NGOs), productive inputs, benefits from elderly people schemes and social action for elderly people programmes.
	Informal transfers (value) per capita	Total amount (USD) of informal transfers received in the last month. They include help in cash and in kind from family members and in-laws, remittances, gifts and borrowing from friends and relatives.
Adaptive Capacity (AC): Ability to adapt to a new situation and develop new livelihood strategies.	Average years of education	Average years of education of household members.
	Share of active members	The dependency ratio is the share of household members actively employed (>15 and <64 years old) over the household size.
	CSI	The CSI is a weighted sum of the number of days the household adopted different strategies to cope with food shortage in the past week. The strategies are weighted as a figure of 1-4 (according to focus group discussions implemented in Adjumani during enumerator training carried out during November 2017), including the following: Rely on less preferred or less expensive food – 1; Purchase food on credit – 2; Borrow food, or rely on help from a relative – 3; Gather wild foods, "famine foods" or hunt – 4; Harvest and consume immature crops – 4; Consume seed stock that will be needed for next season – 4; Send household member elsewhere – 3; Limit portion size at mealtime – 2; Reduce consumption by adults in order for small children to eat – 2; Reduce consumption by others so working members could eat – 1; Go one entire day without eating – 4; Reduce number of meals eaten in a day – 2; Beg for food – 4; Sell natural resources products (water, charcoal, firewood, etc.) -2; Enroll children to schools which provide meals – 3; Sell small assets – 4; Barter – 1; Exchange labour for food – 3. The CSI adopted in the resilience estimation is equal to 1/CSI.
	Number of income-generating activities	Sum of the different sources of income for the household. A list of variables that assumes a value of 1 or 0 is used, depending on whether or not a household has been involved in farming activity; wage employment; sale of livestock products; non-farm enterprise; or has received transfers; rent, the sale of assets or other income sources.
	Number of crops	Sum of the different crops cultivated by the household during the last season.
	Participation in training	Dummy variable for participating in training courses (on agricultural techniques, livestock and products, business skills and other).
Food Security: According to the 1996 World Food Summit, "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996).	Food consumption per capita	Monetary value (USD) of per capita food consumption, including bought, own-produced, received for free (as gifts or part of a conditional project) and food stored over the last month.
	Shannon diversification index	The Shannon dietary diversity index is computed by considering the shares of the consumed calories by food group (cereals, roots, vegetables, fruits, meat, legumes, dairy, fats and other). Specifically, the adopted formula is the following: $Dietary\ diversity = -\sum_{i}^{n} p_i * lnp_i$ Where pi expresses the share of consumed calories of group i in a sample of n food groups (Keylock, 2005).
	FCS	Score calculated using the frequency of consumption of different food groups consumed by the household during the seven days before the survey. The weights are standard and can be employed in all analyses (WFP, 2008).

Table A4. **MIMIC results**

	(1) RCI
ABS	0.011** (0.005)
AST	0.0430*** (0.005)
SSN	0.022*** (0.004)
AC	0.074*** (0.006)
Shannon index	1 (0)
Food consumption per capita	17.93*** (1.138)
FCS	31.17*** (1.622)
Chi squared	63.10
RMSEA	0.048
CFI	0.966
TLI	0.936
Observations	3 034

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Figure A3. **Correlation RCI - pillars**



Source:
Authors' own elaboration.

Figure A4. **Correlation variables - ABS**

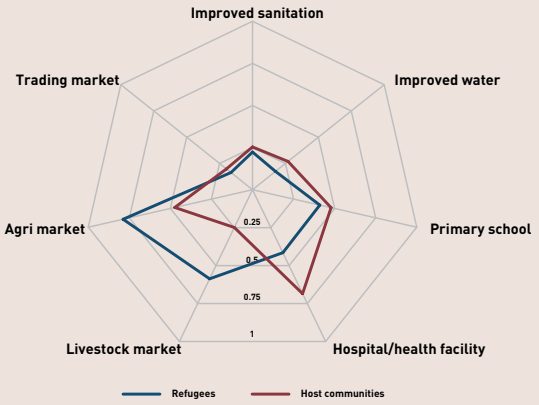
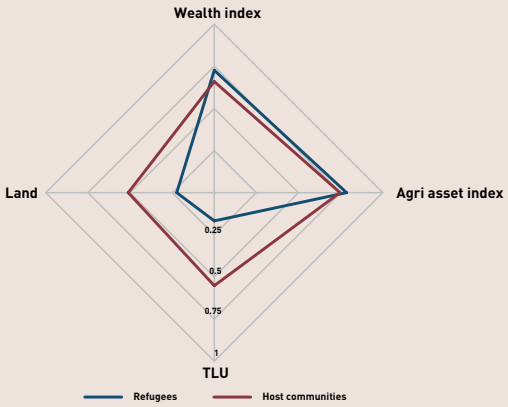


Figure A5. **Correlation variables - AST**



Source:
Authors' own elaboration.

Figure A6. **Correlation variables - SSN**

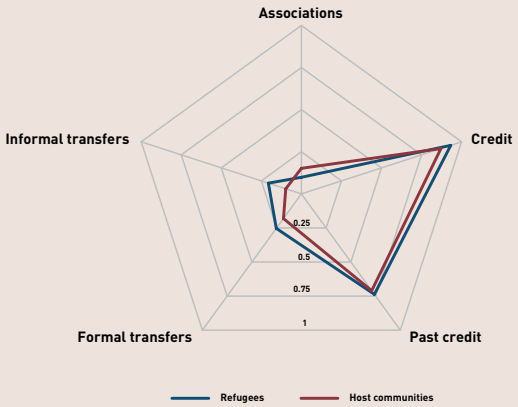
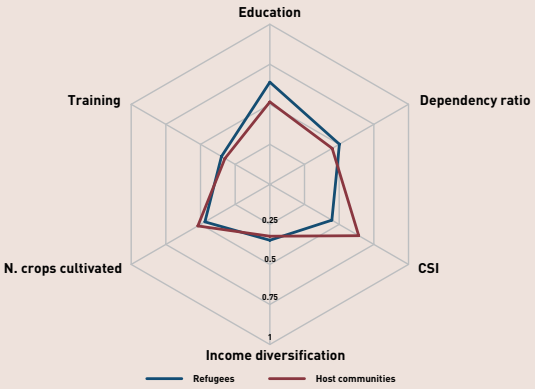
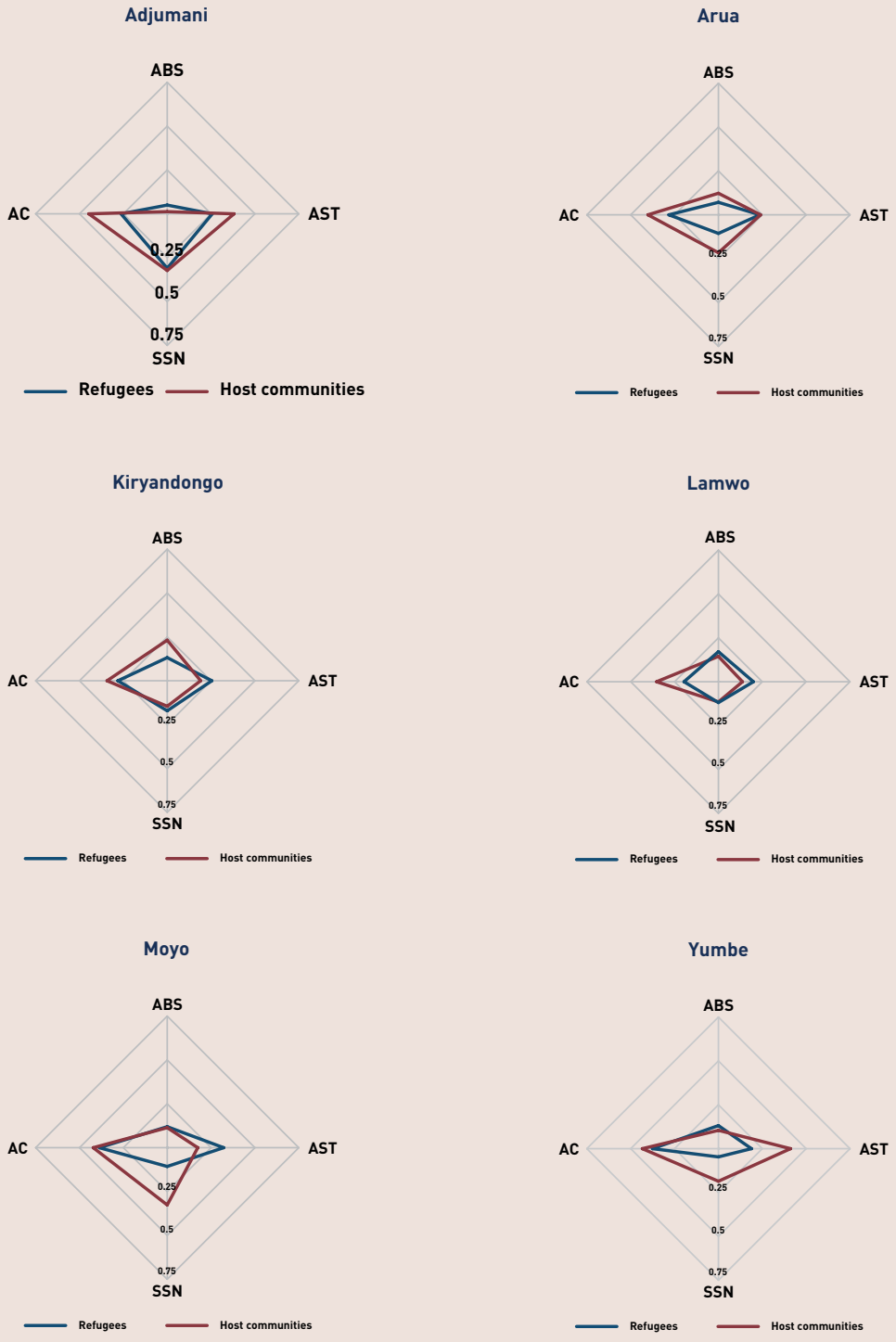


Figure A7. **Correlation variables - AC**



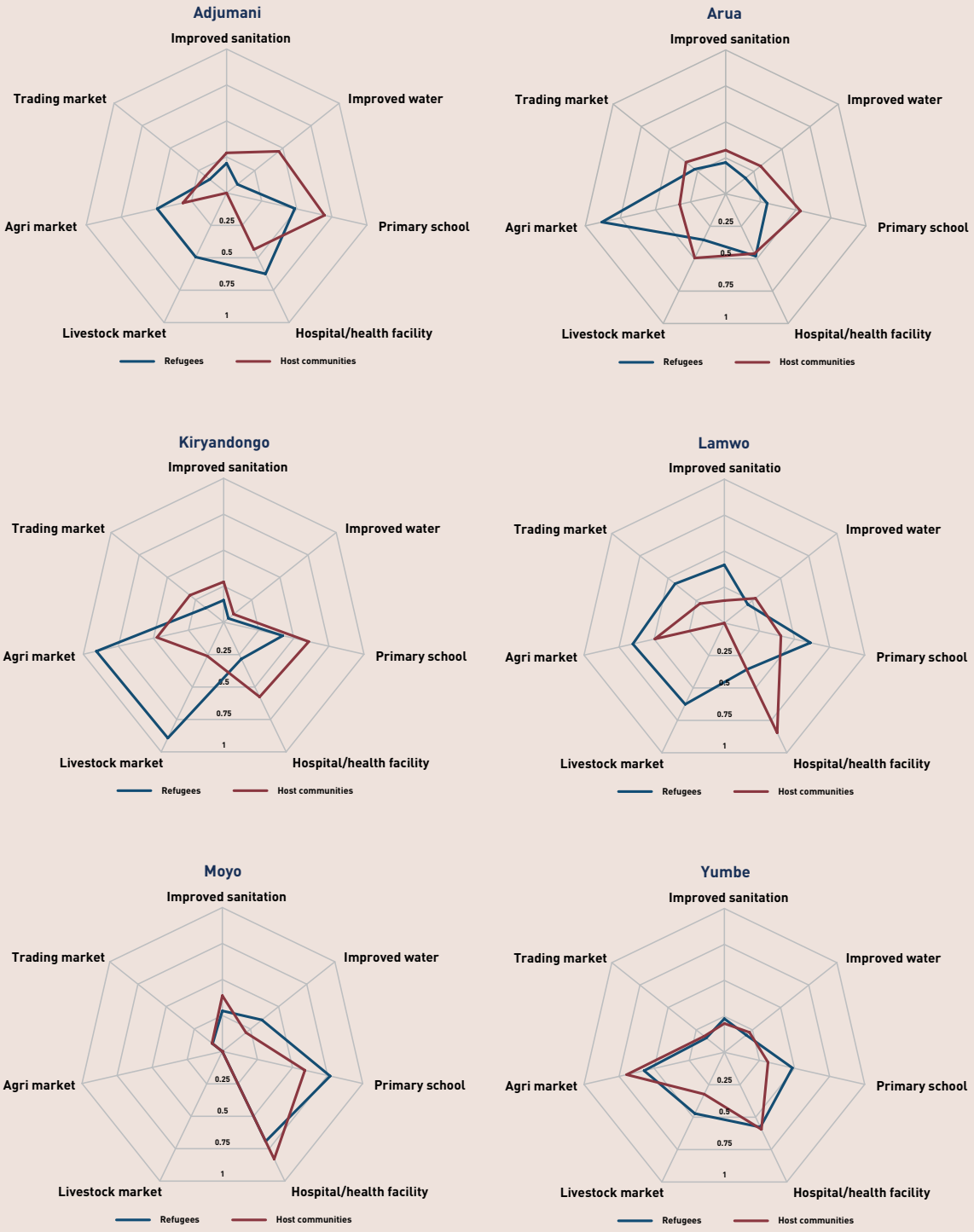
Source:
Authors' own elaboration.

Figure A8. **Correlation pillar – RCI by district and household type**



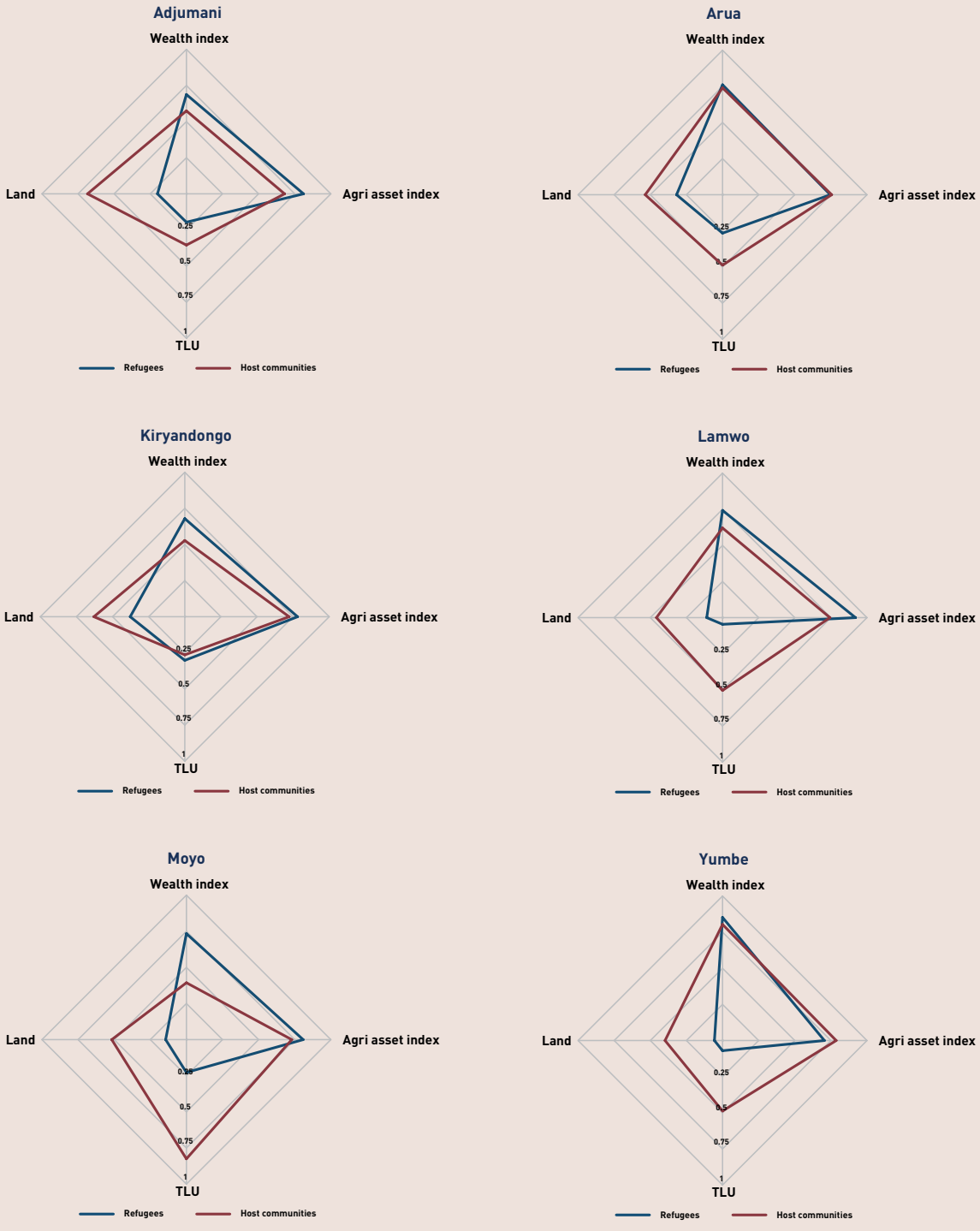
Source:
Authors' own elaboration.

Figure A9. **Correlation variable – ABS pillar by district and household type**



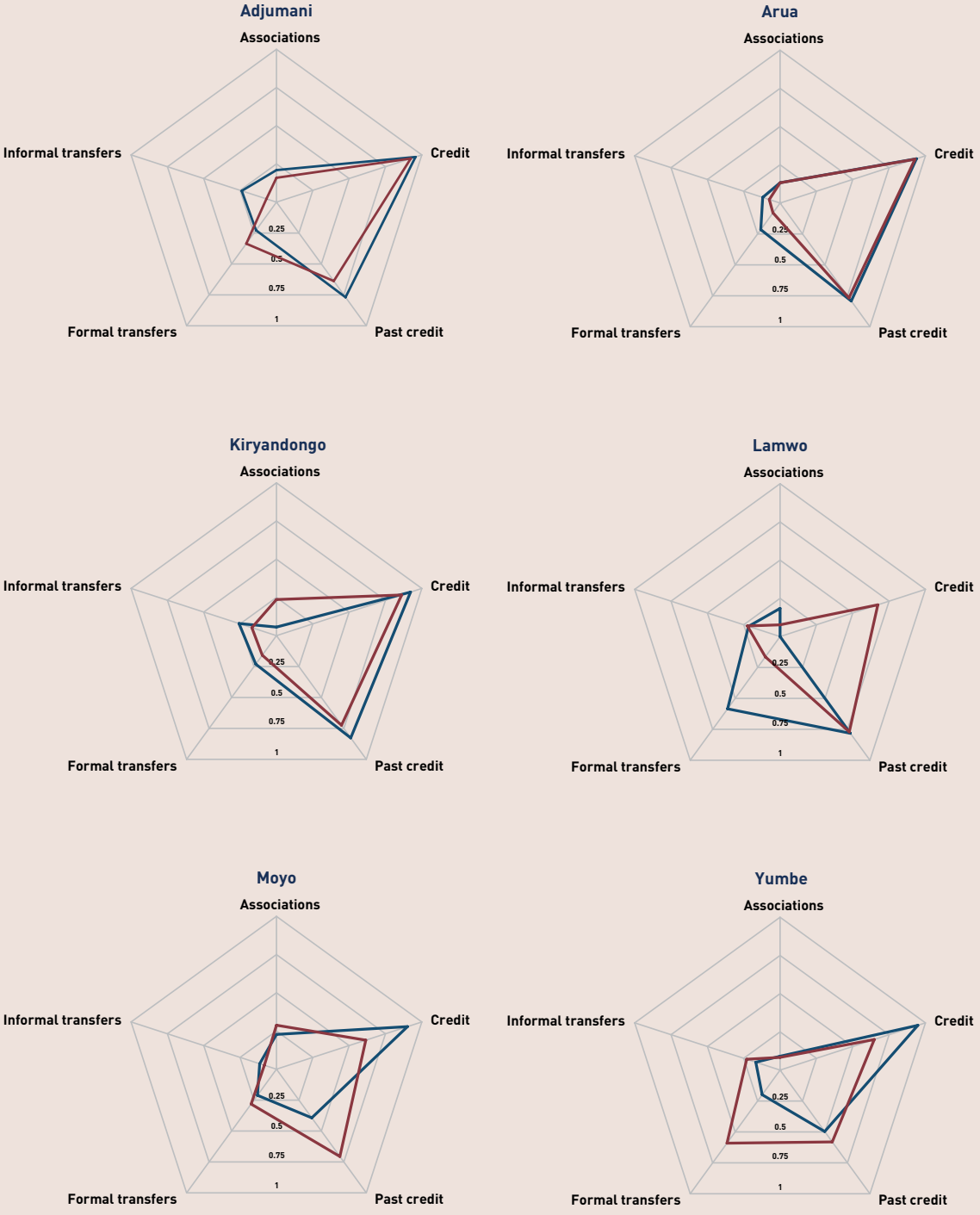
Source:
Authors' own elaboration.

Figure A10. **Correlation variable – AST pillar by district and household type**



Source:
Authors' own elaboration.

Figure A11. **Correlation variable – SSN pillar by district and household type**



Source:
Authors' own elaboration.

Figure A12. **Correlation variable – AC pillar by district and household type**

Source:
Authors' own elaboration.

Table A5. **Results of regressions of shock dummies on RCI by household type**

	Refugees	Host communities
Shock dummies		
Drought	0.137 (0.576)	-2.168** (0.865)
Flood	1.160 (0.815)	1.138 (0.974)
Water shortage	-0.636 (0.546)	-3.301*** (0.859)
Crop pests and diseases	1.840*** (0.676)	0.821 (0.877)
Livestock diseases	0.793 (1.156)	-0.590 (1.036)
High cost of agricultural inputs	2.065 (1.517)	3.548** (1.507)
Illness of income earner	-1.853* (1.059)	1.567 (1.378)
Illness of other members	0.028 (0.728)	-0.821 (0.991)
Death of household members	0.499 (1.043)	2.167 (1.632)
Theft of money, valuables and non-agricultural assets	-0.190 (0.836)	1.747 (1.405)
Theft of agricultural assets or outputs	0.237 (1.080)	-2.926** (1.141)
Conflict	1.660 (1.200)	4.216** (2.143)
Fire	-0.226 (2.716)	-6.596*** (2.343)
Other shock	-2.401* (1.351)	-1.410 (2.446)
Household control characteristics		
Female household head	0.436 (0.582)	1.109 (1.229)
Married household head	-1.181* (0.633)	1.823 (1.341)
Household size	-0.127 (0.145)	-0.0666 (0.190)
Number of children	-0.477** (0.203)	-0.768*** (0.276)
Agro-pastoralist (livelihood)	4.882*** (1.273)	3.718 (2.382)
Farmer (livelihood)	1.547 (1.119)	-0.162 (2.342)
Constant	37.86*** (1.877)	55.19*** (2.767)
Observations	1 712	1 322
R-squared	0.128	0.111

The excluded livelihood dummy is "Urban or other".
District dummies are included in the models.
*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.*

Table A6. **Results of regressions of food security indicators**

	Shannon index	FCS	HDDS	Food consumption (log)
Improved toilet	0.010 (0.009)	1.116** (0.468)	0.101* (0.057)	-0.292 (0.398)
Improved water	0.046*** (0.013)	1.928*** (0.602)	0.100 (0.074)	1.181** (0.512)
Energy source	0.135*** (0.021)	4.829*** (0.978)	0.983*** (0.120)	0.781 (0.831)
Closeness to improved water	-0.003 (0.016)	0.008 (0.747)	0.120 (0.092)	-0.538 (0.635)
Closeness to primary school	0.026 (0.019)	-0.503 (0.895)	0.024 (0.110)	-0.619 (0.760)
Closeness to secondary school	0.012 (0.018)	-0.372 (0.874)	0.046 (0.107)	-0.011 (0.742)
Closeness to hospital/health facility	-0.005 (0.016)	-0.634 (0.778)	0.117 (0.095)	-1.217* (0.661)
Closeness to livestock market	0.027 (0.023)	1.871* (1.092)	0.261* (0.134)	1.069 (0.928)
Closeness to agriculture-crops market	-0.012 (0.016)	-0.381 (0.759)	-0.089 (0.093)	0.667 (0.645)
Closeness to petty trading market	0.032* (0.019)	0.386 (0.911)	0.343*** (0.112)	-0.952 (0.774)
Wealth index	0.115*** (0.021)	6.508*** (0.981)	1.181*** (0.120)	2.182*** (0.834)
Agricultural assets index	-0.038** (0.018)	-3.134*** (0.862)	-0.156 (0.106)	-0.560 (0.732)
TLU	0.004 (0.003)	0.238* (0.123)	0.023 (0.015)	-0.188* (0.105)
Land	0.002 (0.003)	0.132 (0.121)	0.005 (0.015)	-0.021 (0.103)
Credit access	0.004 (0.020)	1.210 (0.963)	-0.035 (0.118)	1.504* (0.818)
Credit access past	0.003 (0.020)	-0.706 (0.955)	-0.077 (0.117)	-0.990 (0.812)
Current credit value	0.000 (0.000)	0.000 (0.000)	0.0001** (0.000)	0.000 (0.000)
Formal transfers	0.000 (0.001)	0.028*** (0.008)	0.001 (0.001)	0.004 (0.007)
Informal transfers	0.000 (0.000)	0.017 (0.013)	0.004** (0.002)	0.004 (0.011)
Participation in associations	0.002 (0.011)	-0.684 (0.505)	0.201*** (0.062)	-0.885** (0.429)
Average education	0.001 (0.002)	0.012 (0.073)	0.019** (0.009)	-0.259*** (0.062)
Participation in training	0.016 (0.011)	0.355 (0.502)	0.213*** (0.062)	0.873** (0.426)
Dependency ratio	0.076*** (0.024)	-3.894*** (1.150)	0.002 (0.141)	11.680*** (0.977)
Income sources activities	0.025*** (0.005)	0.789*** (0.245)	0.233*** (0.030)	-0.292 (0.208)
No. crops cultivated	0.010*** (0.002)	0.762*** (0.103)	0.109*** (0.013)	0.555*** (0.088)

Table A6. **Results of regressions of food security indicators** (cont.)

	Shannon index	FCS	HDDS	Food consumption (log)
Shock in the last 12 months				
Drought	-0.027** (0.011)	-1.317** (0.516)	-0.069 (0.063)	-0.346 (0.439)
Flood	-0.024* (0.014)	0.196 (0.671)	-0.104 (0.082)	-0.266 (0.570)
Water shortage	-0.019* (0.011)	-0.895* (0.503)	-0.065 (0.062)	-0.757* (0.428)
Crop, pests and diseases	0.003 (0.012)	-0.582 (0.579)	-0.043 (0.071)	-1.126** (0.492)
Livestock diseases	-0.028* (0.017)	-1.752** (0.794)	-0.185* (0.097)	-1.129* (0.675)
High cost of agricultural inputs	0.044* (0.023)	0.082 (1.105)	0.389*** (0.135)	1.619* (0.939)
Illness of income earner(s)	-0.016 (0.019)	-0.102 (0.895)	-0.023 (0.110)	-0.216 (0.761)
Illness of other member(s)	-0.022* (0.013)	-1.327** (0.633)	-0.105 (0.078)	-0.645 (0.538)
Death of household member(s)	0.024 (0.019)	-0.658 (0.952)	0.085 (0.117)	1.527* (0.809)
Theft of money, valuables and non-agricultural assets	0.009 (0.016)	1.055 (0.781)	0.154 (0.096)	-0.450 (0.664)
Theft of agricultural assets or output	-0.047*** (0.017)	-0.742 (0.816)	-0.038 (0.100)	0.103 (0.693)
Conflict	0.0092 (0.017)	-0.097 (0.828)	0.145 (0.101)	-0.383 (0.704)
Fire	-0.066* (0.038)	-0.618 (1.802)	-0.380* (0.221)	-2.749* (1.532)
Other shock	-0.028 (0.027)	-0.206 (1.308)	0.019 (0.160)	1.820 (1.112)
HH characteristics				
Female head	0.077 (0.115)	-5.298 (5.509)	-0.651 (0.675)	12.820*** (4.682)
Married head	-0.026** (0.013)	1.168* (0.630)	0.086 (0.077)	-1.182** (0.536)
De jure female head	-0.077 (0.116)	4.898 (5.527)	0.592 (0.678)	-13.100*** (4.697)
Hosting household	0.178*** (0.014)	5.497*** (0.657)	0.858*** (0.081)	2.919*** (0.558)
Crop farmer livelihood	-0.029** (0.012)	-1.786*** (0.584)	-0.286*** (0.072)	0.220 (0.496)
Urban livelihood	-0.052** (0.026)	-4.030*** (1.232)	-0.339** (0.151)	-0.813 (1.047)
Constant	0.898*** (0.038)	33.780*** (1.810)	4.298*** (0.222)	13.08*** (1.538)
Observations	3 034	3 034	3 034	3 034
R-squared	0.262	0.234	0.346	0.167

*District dummies are included in the models. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.*

ANNEX III
REGRESSION ANALYSES

Table A7. **Probit models of the determinants of livelihood changes: refugee population**

	Aspiration of working in the same sector of country of origin	Aspiration of working in the sales/shops sector	Aspiration of working in productive sectors
Male	0.034 (0.034)	0.086 (0.056)	-0.039 (0.034)
Age	-0.013*** (0.004)	-0.006 (0.006)	0.007* (0.004)
Squared age	0.0002*** (0.000)	0.000 (0.000)	-0.0001** (0.000)
No. months lived in the same area	-0.0002*** (0.000)	0.000 (0.000)	0.000 (0.000)
Years of formal education	-0.009 (0.007)	0.014 (0.011)	0.018*** (0.007)
Married	-0.044*** (0.012)	-0.036* (0.019)	0.023** (0.012)
Literacy (local language)	0.101** (0.048)	-0.105 (0.081)	-0.054 (0.048)
Literacy (English)	-0.068 (0.049)	-0.149* (0.084)	0.074 (0.049)
District dummies			
Arua	0.498*** (0.059)	-0.036 (0.093)	-0.269*** (0.059)
Yumbe	-0.163*** (0.063)	-0.111 (0.101)	-0.038 (0.063)
Moyo	0.397*** (0.075)	-0.059 (0.114)	0.059 (0.073)
Kyriandongo	0.468*** (0.073)	-0.133 (0.100)	0.280*** (0.063)
Lamwo	0.194*** (0.064)	-0.739*** (0.169)	-0.159** (0.075)
Constant	0.156 (0.108)	-1.260*** (0.176)	-0.232** (0.107)
Observations	5 819	5 819	5 819

The excluded district dummy is 'Adjumani'.
*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.*

Table A8. **Probit model of the determinants of operating an enterprise: refugee sample**

	Operating an enterprise
Improved toilet	0.031 (0.078)
Improved water	0.016 (0.096)
Closeness to primary school	0.101 (0.233)
Closeness to hospital/health facility	-0.552* (0.315)
Closeness to livestock market	-0.357 (0.302)
Closeness to agricultural market	0.254 (0.181)
Closeness to petty trading market	0.265** (0.124)
Wealth index	0.402** (0.169)
Agricultural assets index	-0.283* (0.145)
TLU	-0.094 (0.116)
Land for cropping	-0.115 (0.123)
Participation in associations	0.201** (0.081)
Credit pc	0.003 (0.007)
Past credit pc	0.004 (0.008)
Formal transfers pc	-0.038*** (0.013)
Informal transfers pc	-0.041** (0.019)
Average HH education	0.013 (0.011)
Share of active members	0.392 (0.343)
CSI	0.284 (0.177)
Income diversification	0.739*** (0.048)
No. crops cultivated	0.017 (0.018)
Training	0.167** (0.079)

Table A8. **Probit model of the determinants of operating an enterprise: refugee sample** (cont.)

	Operating an enterprise
HH characteristics	
Household size	0.027 (0.030)
Number of children	0.005 (0.053)
Female headed households	0.146* (0.086)
Married headed households	-0.105 (0.093)
Age of household head	-0.006** (0.003)
District dummies	
Adjumani	0.535*** (0.155)
Arua	0.095 (0.128)
Kiryandongo	-0.277* (0.162)
Lamwo	0.778*** (0.156)
Moyo	0.212 (0.154)
Constant	-2.490*** (0.315)
Observations	1 712

The excluded district dummy is 'Yumbe'.
*Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.*

Table A9. **Regressions of the determinants of subjective resilience to (1) generic shock or (2) drought**

	(1) Subjective resilience to generic shocks	(2) Subjective resilience to drought
Improved toilet	-0.071*** (0.023)	-0.088*** (0.028)
Improved source of water	-0.133*** (0.028)	-0.117*** (0.035)
Closeness to primary school	0.122* (0.068)	0.164* (0.084)
Closeness to hospital/health facility	-0.018 (0.052)	0.081 (0.064)
Closeness to livestock market	0.063 (0.095)	0.092 (0.117)
Closeness to agriculture-crops market	0.104** (0.049)	0.089 (0.061)
Closeness to petty trading market	-0.010 (0.029)	-0.069* (0.036)
Wealth index	-0.243*** (0.047)	-0.148** (0.058)
Agricultural assets index	-0.129*** (0.041)	-0.182*** (0.050)
TLU	0.004 (0.006)	-0.006 (0.007)
Land	-0.004 (0.008)	0.006 (0.011)
Participating in associations	-0.069*** (0.024)	-0.033 (0.029)
Current credit value	-0.001 (0.001)	-0.001 (0.002)
Past credit value	0.001 (0.001)	-0.001 (0.001)
Formal transfers	-0.001 (0.002)	0.002 (0.003)
Informal transfers	-0.004 (0.004)	-0.005 (0.005)
Average years of education	-0.007* (0.004)	-0.006 (0.004)
Dependency ratio	-0.136** (0.059)	-0.069 (0.073)
CSI	0.047 (0.044)	-0.098* (0.055)
No. income-generating activities	0.010 (0.012)	0.001 (0.014)
No. cultivated crops	-0.018*** (0.005)	-0.025*** (0.006)
HH participating in training	-0.001 (0.024)	-0.014 (0.029)

Table A9. **Regressions of the determinants of subjective resilience to (1) generic shock or (2) drought (cont.)**

	(1) Subjective resilience to generic shocks	(2) Subjective resilience to drought
Shocks in the last 12 months		
Drought	-0.037 (0.025)	-0.131*** (0.031)
Flood	0.021 (0.032)	0.083** (0.039)
Water shortage	-0.043* (0.024)	0.067** (0.029)
Pests, parasites and diseases	0.085*** (0.028)	0.087** (0.034)
Livestock diseases	-0.023 (0.038)	0.106** (0.047)
High cost of agricultural inputs	-0.059 (0.053)	0.083 (0.065)
Illness or accident of income earner(s)	-0.083* (0.043)	-0.003 (0.053)
Serious illness or accident of other HH member(s)	-0.086*** (0.030)	-0.047 (0.037)
Death of HH member(s)	0.088* (0.045)	0.093* (0.056)
Theft of money/valuables/non-agricultural assets	0.049 (0.037)	0.033 (0.046)
Theft of agricultural assets/output (crop or livestock)	-0.057 (0.039)	0.008 (0.048)
Conflict	-0.079** (0.039)	-0.009 (0.048)
Fire	0.041 (0.086)	-0.028 (0.106)
Other shock	0.189*** (0.062)	0.214*** (0.077)
HH characteristics		
Female HH head	0.097*** (0.024)	0.052* (0.029)
Age of HH head	0.005*** (0.001)	0.003*** (0.001)
HH size	-0.032*** (0.011)	-0.017 (0.013)
Squared HH size	0.001 (0.001)	0.000 (0.001)
Hosting household	-0.157*** (0.0347)	-0.147*** (0.043)
Constant	3.997*** (0.083)	4.378*** (0.102)
Observations	3 034	3 034
R-squared	0.188	0.114

*District dummies are included in the models. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.*

ANNEX IV
DESCRIPTIVE STATISTICS

Table A10. **Summary statistics of variables employed for the estimation of the RCI**

	Total sample	Refugees	Host communities	Refugees-host communities
ABS				
Improved toilet	0.497 (0.500)	0.507 (0.500)	0.485 (0.500)	0.022 (0.018)
Improved water	0.801 (0.400)	0.765 (0.424)	0.846 (0.361)	-0.081*** (0.014)
Closeness to school	0.0929 (0.158)	0.100 (0.164)	0.083 (0.150)	0.017** (0.006)
Closeness to hospital/health facility	0.068 (0.209)	0.065 (0.156)	0.072 (0.263)	-0.008 (0.00)
Closeness to livestock market	0.022 (0.122)	0.029 (0.147)	0.012 (0.077)	0.017*** (0.004)
Closeness to agricultural market	0.043 (0.234)	0.049 (0.281)	0.036 (0.154)	0.013 (0.008)
Closeness to petty trading market	0.141 (0.367)	0.151 (0.369)	0.129 (0.365)	0.023 (0.013)
AST				
Wealth index	0.595 (0.254)	0.535 (0.235)	0.673 (0.258)	-0.138*** (0.009)
Agricultural asset index	0.535 (0.313)	0.451 (0.283)	0.645 (0.317)	-0.194*** (0.011)
TLU	0.746 (2.149)	0.081 (0.350)	1.607 (3.022)	-1.526*** (0.084)
Land for cropping	1.363 (1.876)	0.229 (0.367)	2.831 (2.022)	-2.602*** (0.056)
SSN				
Participation in associations	0.552 (0.497)	0.488 (0.500)	0.634 (0.482)	-0.146*** (0.018)
Credit pc	2.095 (9.345)	0.959 (5.650)	3.567 (12.460)	-2.608*** (0.369)
Past credit pc	2.266 (10.840)	0.743 (4.698)	4.238 (15.310)	-3.496*** (0.436)
Formal transfers pc	2.530 (5.485)	3.100 (3.339)	1.792 (7.326)	1.309*** (0.217)
Informal transfers pc	0.614 (2.528)	0.540 (2.033)	0.711 (3.049)	-0.171 (0.097)

Table A10. **Summary statistics of variables employed for the estimation of the RCI (cont.)**

	Total sample	Refugees	Host communities	Refugees-host communities
AC				
Average HH education	5.459 (3.438)	4.314 (3.587)	6.942 (2.564)	-2.628*** (0.112)
Share of active members	0.488 (0.205)	0.464 (0.203)	0.520 (0.204)	-0.055*** (0.007)
CSI	0.147 (0.259)	0.106 (0.207)	0.200 (0.305)	-0.095*** (0.009)
Income diversification	1.847 (1.053)	1.657 (0.969)	2.095 (1.104)	-0.438*** (0.038)
No. crops cultivated	4.173 (2.758)	3.300 (2.345)	5.305 (2.841)	-2.005*** (0.097)
Training	0.346 (0.476)	0.345 (0.475)	0.348 (0.477)	-0.003 (0.017)
Food security				
Shannon index	1.065 (0.293)	0.968 (0.254)	1.190 (0.293)	-0.222*** (0.010)
Food consumption pc	12.950 (11.150)	11.440 (8.455)	14.910 (13.630)	-3.467*** (0.427)
FCS	44.230 (13.750)	40.670 (11.620)	48.830 (14.870)	-8.161*** (0.496)
Observations	3 034	1 712	1 322	3 034

*T-test on the mean difference between refugees and host communities. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.*

Table A11. **Subjective resilience by refugees and host communities**

	Refugee households		Host communities	
	Frequency	Percentage	Frequency	Percentage
My household can bounce back from any challenge that life throws at us				
Strongly agree	47	2.75	51	3.86
Agree	647	37.79	735	55.60
Neither agree nor disagree	169	9.87	132	9.98
Disagree	671	39.19	334	25.26
Strongly disagree	178	10.40	70	5.30
My household is better able to deal with hardship compared with others in our community				
Strongly agree	27	1.58	44	3.33
Agree	412	24.07	472	35.70
Neither agree nor disagree	217	12.68	187	14.15
Disagree	753	43.98	484	36.61
Strongly disagree	303	17.70	135	10.21
If threats to my household become more frequent and intense, we would still find a way to get by				
Strongly agree	35	2.04	42	3.18
Agree	581	33.94	658	49.77
Neither agree nor disagree	209	12.21	151	11.42
Disagree	671	39.19	383	28.97
Strongly disagree	216	12.62	88	6.66
During times of hardship, my household can change its primary source of income or livelihood if needed				
Strongly agree	38	2.22	60	4.54
Agree	521	30.43	607	45.92
Neither agree nor disagree	212	12.38	166	12.56
Disagree	694	40.54	393	29.73
Strongly disagree	247	14.43	96	7.26
My household can afford all of the things that it needs to survive and thrive				
Strongly agree	13	0.76	23	1.74
Agree	115	6.72	180	13.62
Neither agree nor disagree	113	6.60	151	11.42
Disagree	824	48.13	623	47.13
Strongly disagree	647	37.79	345	26.10
My household can rely on the support of family and friends when we need help				
Strongly agree	136	7.94	153	11.57
Agree	701	40.95	646	48.87
Neither agree nor disagree	177	10.34	160	12.10
Disagree	465	27.16	287	21.71
Strongly disagree	233	13.61	76	5.75
My household can rely on the support politicians and government when we need help				
Strongly agree	112	6.54	62	4.69
Agree	542	31.66	363	27.46
Neither agree nor disagree	208	12.15	133	10.06
Disagree	501	29.26	493	37.29
Strongly disagree	349	20.39	271	20.50
My household has learned important lessons from past hardships that will help us to better prepare for the future				
Strongly agree	146	8.53	110	8.32
Agree	855	49.94	724	54.77
Neither agree nor disagree	181	10.57	129	9.76
Disagree	404	23.60	297	22.47
Strongly disagree	126	7.36	62	4.69

Table A11. **Subjective resilience by refugees and host communities (cont.)**

	Refugee households		Host communities	
	Frequency	Percentage	Frequency	Percentage
My household is fully prepared for any future threats and challenges that life throws at us				
Strongly agree	19	1.11	11	0.83
Agree	216	12.62	277	20.95
Neither agree nor disagree	212	12.38	221	16.72
Disagree	939	54.85	647	48.94
Strongly disagree	326	19.04	166	12.56
My household frequently receives information warning us about future extreme weather events in advance				
Strongly agree	27	1.58	39	2.95
Agree	357	20.85	357	27.00
Neither agree nor disagree	138	8.06	152	11.50
Disagree	894	52.22	643	48.64
Strongly disagree	296	17.29	131	9.91
If an severe drought occurred tomorrow, my household would be well prepared in advance				
Strongly agree	5	0.29	7	0.53
Agree	123	7.18	180	13.62
Neither agree nor disagree	132	7.71	169	12.78
Disagree	1 005	58.70	703	53.18
Strongly disagree	447	26.11	263	19.89
If a severe drought occurred tomorrow, my household could recover fully within six months				
Strongly agree	4	0.23	11	0.83
Agree	170	9.93	271	20.50
Neither agree nor disagree	177	10.34	176	13.31
Disagree	899	52.51	578	43.72
Strongly disagree	462	26.99	286	21.63
If severe droughts were to become more frequent and intense, my household would still find a way to get by				
Strongly agree	13	0.76	21	1.59
Agree	406	23.71	481	36.38
Neither agree nor disagree	241	14.08	151	11.42
Disagree	780	45.56	504	38.12
Strongly disagree	272	15.89	165	12.48
Observations	1 712		1 322	

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This document fits into the series of country level analyses prepared by the FAO Resilience Analysis and Policies (RAP) Team.

The series aims at providing programming and policy guidance to policy makers, practitioners, UN agencies, NGOs and other stakeholders by identifying the key factors that contribute to the resilience of households in food insecure countries and regions.

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