



# Global Water Initiative - East Africa

## Secure Water for Smallholder Agriculture

**BRIEF**  
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# Overview Brief

## Otuke District in Uganda



### Background

GWI EA is a 5-year program funded by the Howard G. Buffett Foundation and implemented by CARE. Through action research that informs advocacy, the program seeks to influence future investment in water for smallholder farmers within Ethiopia, Tanzania and Uganda, and more widely across East Africa. Our core approach is to explore the use of innovative techniques and technologies for more effective management and utilization of water for smallholder farming through the vehicle of a district-level Learning and Practice Alliance. The key goal is to ensure smallholder farmers become more resilient to shocks and achieve greater food security.

### Key characteristics of Otuke

Otuke District lies within the Lango Sub-Region of Northern Uganda. It is one of three districts in East Africa where GWI is implementing action research through Learning and Practice Alliances. In Otuke we are working with champion farmers in three sub-counties: Ogor, Orum and Olilim. Through these champion farmers and the land they cultivate we are establishing long-term research relationships that will enable the program to establish a long-term view of investment opportunities in water for smallholder farmers and to share this learning

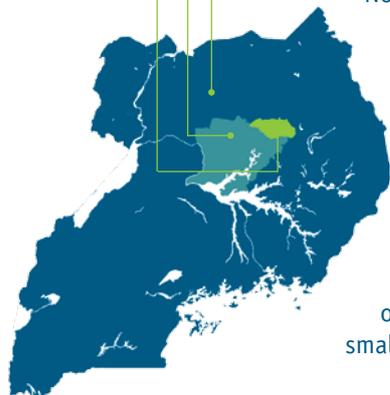
at district, sub-region, regional and national levels. Repeated research cycles will enable the program to continue to focus on innovation in support to smallholder farmers and build a strong body of evidence that informs advocacy on increasing smart investments.

### Geography and climate

Otuke District lies some 400km north of Kampala by road. Bordered by seven other districts, it has five sub-counties and one town council. In 2002 the population was an estimated 78,420, according to the National Census, though this population is likely to have risen substantially subsequent to the end of conflict in the north. Most inhabitants are of the Lango ethnic group, related to neighbouring Karamajong, Teso, Kumam and Jie ethnic groups.

Physically, the district is gently undulating land lying about 1,000 meters above sea level. Most land is well-drained though there are some wetland areas on the district's periphery. Most of Otuke is intermediate savannah grasslands, with scattered trees, many of which produce the valuable Shea nut oil. Vegetation is rapidly changing as land use switches to greater cultivation, and indigenous vegetation is being replaced by exotic species of trees, shrubs and grasses, including elephant grass, which is used as livestock fodder.

Uganda  
Lango Region  
Otuke District



Otuke receives between 1,000-1,400 mm of rainfall throughout the year in bimodal pattern – from March to May and again from August to October. The brief dry spell from June to July is the main cause of mid-season crop failures. Farmers also suffer failures due to water logging from August to October during the heaviest rains.

### Land and agriculture

Agriculture is the backbone of Otuke's economy and actively engages nearly all the district's population. Before the onset of 20-year conflict with LRA rebels and cattle rustling by the Karomjong, the Lango people undertook a range of livelihoods including different forms of agriculture (commercial, subsistence, mixed cash-crop grain farming and horticulture), livestock production (cattle, goat, sheep, and poultry keeping), and hunting and fishing. The impact of continued conflict, however, disrupted traditional livelihoods and social safety nets such as seed lending, land-sharing and joint animal husbandry. Without mechanisms of support people were forced to sell off parcels of land, leaving many large tracts uncultivated and for grazing only. The average household cultivated plot is now between three and five acres.

Other underlying agricultural challenges include climate variability, low levels of technological innovation and the moderate fertility of Otuke's sandy loam soils coupled with a tendency towards water-logging in the grey clay soils of the district's wetland areas. The most common food crops include rice, beans, sesame, ground nuts, field peas, sorghum and cassava. The traditional cash crop is cotton, but conflict and unstable world market prices have severely hindered production. Rice is now the main cash crop in Otuke. Many farmers still plant their crops based on traditional understandings of rainfall patterns, in spite of changing conditions, which leaves crops vulnerable to failure. Moreover, most farmers plant long-maturing traditional crop varieties that render production levels more susceptible to mid-season rainfall changes. Overall, the challenges to farming in the district result in production levels that are about

a fifth of national average yields. Soil and water conservation practices like mulching, contouring, are practiced by less than 10% of the farmers. This affects soil fertility and moisture retention which, with the increasing dry spells due to rainfall fluctuations, means that returns on investments are low.

Land preparation is mainly undertaken in January and February. Planting lasts from February through to April and first season weeding from May to June. The harvest of first season crops starts in July and continues until October when planting and weeding for second season crops is also undertaken. Rainfall periods and peak labour demand tend to occur simultaneously, with the exception of the weeding season and during the harvest. Peak labour months are November and December when households undertake a full harvest.

### Food and livelihood security

Otuke's poverty levels are high. An estimated 80% of the population lives below the national income poverty threshold, compared with the national average of 39%. Monthly household income is just Ush 170,000. There are also important gender dimensions, including the fact that although most farming is undertaken by women, there is highly unequal access to land for women smallholders.

As a result of these poverty dimensions, Food security remains challenging. According to the recent GWI EA baseline survey, households in Otuke do not produce enough food to last throughout the year (GWI EA, 2013). In this survey only a quarter of households sampled produced sufficient food to meet their food needs up to the next season; and as a result of low farm-gate prices households are forced to sell in local markets a large proportion of their crops to generate cash income for schooling, health and other associated household costs. Additional strategies employed by households to help cope with food insecurity include selling casual labour, selling small-stock, gathering and marketing wild vegetables and brewing and distilling alcohol.



### Water management and use

Reducing the challenges associated with uncertain rainfall will considerably strengthen the resilience and food security of smallholder farmers. Although some rainwater harvesting takes place in the district, it is largely for domestic use and brick-building, and rarely for agriculture. Very few farmers have adopted simple technologies that are available to enhance soil and water conservation and help to ensure greater soil moisture retention (e.g. double-dug trenches). Furthermore, to date there has been little attempt at tapping into and utilizing groundwater resources, beyond domestic supply, and few farmers have begun to use irrigation. Many barriers exist to the adoption and uptake of techniques and practice of soil and water conservation including the high cost of

technologies themselves and a relative lack of availability in local markets. In addition, there has been little development of training and capacity building for farmers in such techniques.

### Future challenges

GWI EA, working with farmers and local stakeholders in Otuke, will help to tackle these challenges and assist in the identification and adoption of water management techniques that enhance smallholder farming. In doing so we will build a body of evidence that feeds into sub-national and national-level experience sharing and dialogue on ways of improving the productivity and food security of smallholder farmers in Uganda.

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