



Community members collecting water from a borehole in Wau, South Sudan. Photo: Paul Evans/Oxfam

# IMPROVING COORDINATION THROUGH MAPPING

## Using GIS to map community boreholes in South Sudan

**In South Sudan, Oxfam has introduced the use of Geographic Information Systems (GIS) to map water and sanitation facilities across conflict-hit Wau. This has enabled Oxfam and partners to better monitor and coordinate activities – and has the potential to maximize opportunities to develop sustainable water sources.**

# 1 INTRODUCTION

Wau town in northwest South Sudan is home to approximately 150,000 people. Ongoing fighting between government and opposition forces has caused widespread insecurity across Wau and the surrounding rural areas. As of April 2017, Wau was home to around 55,000 internally displaced persons (IDPs) sheltering in various camps spread across the town. The largest single camp hosts approximately 43,000 individuals, with the population continuing to rise.

Oxfam provides and manages water, sanitation and hygiene (WASH) facilities for approximately 50,000 people across the various IDP sites in Wau. A number of other agencies also operate locally and regionally to provide support to both the IDPs and host communities. Oxfam provides a WASH Cluster State Focal Point for Wau to coordinate WASH activities in the area.

A key need exists to understand which stakeholders are doing what, where, to help track completed activities and coordinate ongoing and future activities. In what can be a deeply unstable environment, no formal mapping of aid agency activities had previously been carried out in the area.

## 2 INTRODUCING GIS

Through the WASH Cluster platform, Oxfam recently introduced the use of geographic information systems (GIS) in Wau to help better visualize completed WASH activities and enable improved planning, monitoring and coordination of ongoing and planned WASH activities. Local WASH partners shared GPS coordinates for existing and planned WASH facilities to improve coordination. The mapping is 'live', with information updated on a regular basis using feedback from Oxfam teams and WASH partners.

The majority of facilities that are mapped are community boreholes that have been installed with manual hand pumps. The GPS data collected is used in conjunction with a national database to help support both needs assessments and ongoing sustainability assessments.

Figure 1 and Figure 2 present examples of outputs from this work.

Figure 1: Example map illustrating IDP camps across Wau. Credit: Paul Evans/Oxfam

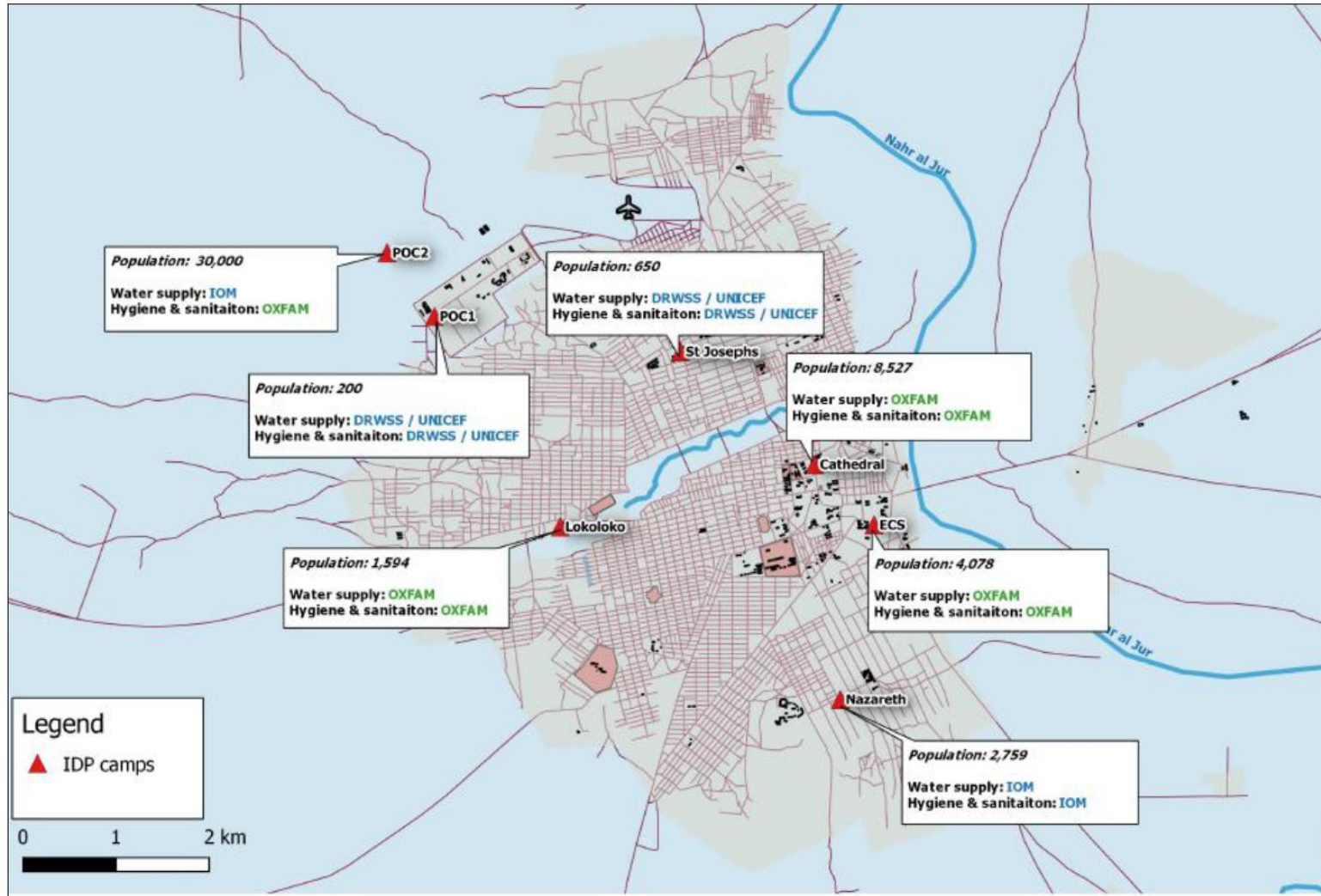
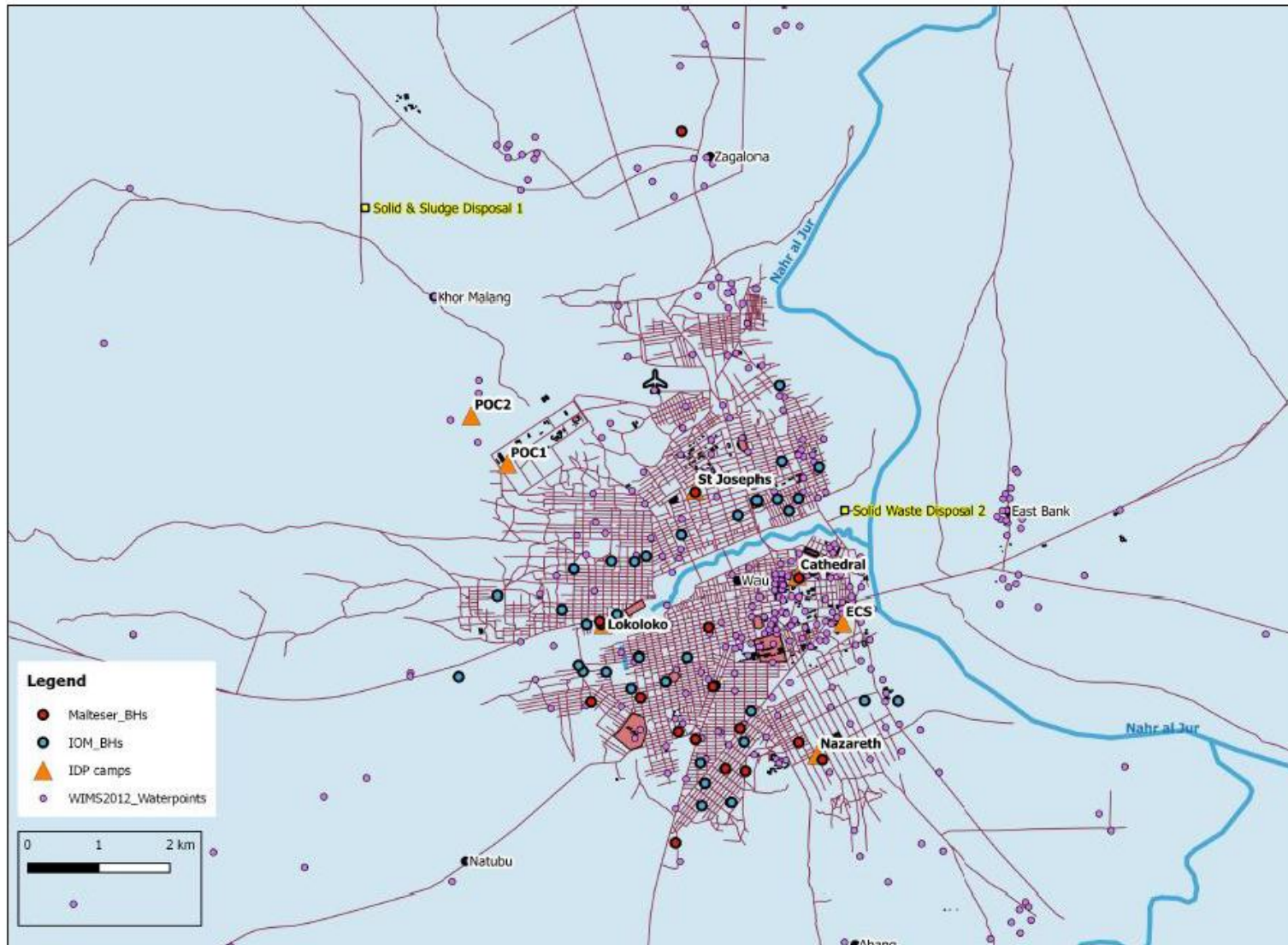


Figure 2: Example map illustrating key features and boreholes across Wau. Credit: Paul Evans/Oxfam



The software used to create the maps is Quantum GIS (QGIS) which is free and open-source, and is used elsewhere by Oxfam and by many other humanitarian agencies. Data used for the mapping has been gained from a variety of sources, including:

- historical WASH data recorded by Oxfam and WASH partners;
- ongoing WASH activities recorded by Oxfam and WASH partners;
- borehole data made available through the local office of the Directorate of Public Utilities (e.g. the national water information management system (WIMS) database);
- open-source geographical and GIS data.

This has allowed WASH partners working in Wau such as IOM, DRWSS, Malteser and UNICEF to better understand who is working where and to coordinate activities.

The main benefits of the mapping have been to provide information in a format that can be quickly and easily communicated, both within Oxfam and with partners. The mapping also provides a platform that can continue to be developed and updated as the context and activities evolve. Despite a number of challenges in sourcing reliable baseline data for the region, the use of GIS also offers the potential for improved technical analysis of geological and hydro-geological conditions – improving the process of locating new boreholes and maximizing the chances of developing successful and sustainable water sources.

### 3 NEXT STEPS

A number of opportunities exist to develop the team's wider capacity to apply GIS across Oxfam's South Sudan programme. Current activities to develop these maps have relied on pre-existing expertise within the WASH team. The humanitarian team has recently recruited a GIS officer to support the team's activities. It is hoped that this increased capacity will enable the increased usage of GIS data within monitoring, evaluation, accountability and learning (MEAL) and emergency food security and vulnerable livelihoods (EFSVL) teams.

A GIS Box databank has been established to provide a platform for GIS resource sharing between Oxfam staff. This forms part of a wider initiative that is working to streamline the use of GIS across Oxfam in a more strategic manner. The possibility of developing a library of mapping resources is being explored; the idea being to establish available resources for every Oxfam mission.

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For further information on the issues raised in this paper please email [leldon@oxfam.org.uk](mailto:leldon@oxfam.org.uk)

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