# UPGro Hidden Crisis Project

## Survey 2 dataset – Metadata documentation

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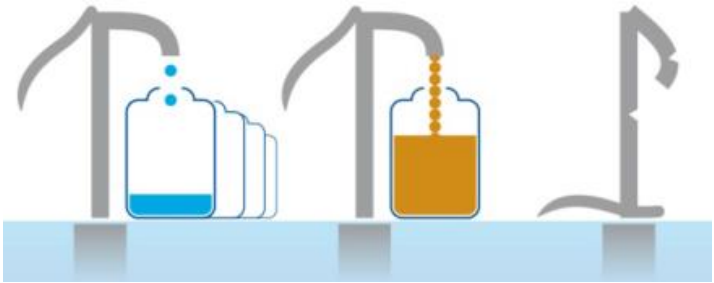
## Survey sample design



UPGro is funded by:

## Survey 2 – Sample design

The overall aim of the second survey phase of the *Hidden Crisis project* was to undertake a comprehensive assessment of 150 handpumped borehole supplies (HPBs) to better understand the underlying causes of functionality performance and source failure.

The detailed physical and social science datasets developed by the survey were intended to be used to: better understand the multi-faceted factors which underlie source failure; and to explore the inter-relations between the water point governance arrangements, engineering choice and performance, and groundwater resource conditions.

**The individual HPBs and their related management arrangements surveyed in Survey 2 were selected using a purposive sampling approach.** The aim of this sampling approach was to ensure the Survey 2 dataset investigated sites representing each of the 10 functionality categories identified in Survey 1.

In total 150 HPBs and their related water management arrangements (50 per country) were selected from the 600 HPBs originally sampled in Survey 1.

## Purposive sampling approach

The aim of the site selection approach for Survey 2 was to:

- Select 50 sites (HPBs) per country
- Investigate community water management arrangements for each of the 10 functionality categories identified in Survey 1, with as even a number of HPBs sampled across the 10 categories as possible in each country.
- To capture a range of ages of HPBs, and local water management arrangement capacities in the Survey 2 sample.
- For the 50 sites in each country to be derived from 4 districts, rather than across the full suite of districts surveyed in each country in Survey 1. This was to minimise the amount of travel distances between sites, and enabling the survey to be completed within five months, whilst still ensuring a reasonable geographic spread of Survey 2 sites.

Using these criteria, the first step of the selection process was to identify four districts in each country which provided: a sufficient number of HPBs across the 10 functionality categories; and a range of ages of HPBs, and local water management arrangement capacities. Table 1 lists the four districts which met these criteria in each country.

The survey 2 sampling sites were then purposively selected from the four districts in each country.

Table 2 shows the final distribution of HPBs selected for Survey 2 from each country, together with the total number of HPBs available from the sampled districts.

| Country | Districts selected for Survey 2 |
|---|---|
| Ethiopia | Abeshege<br>Ejere<br>Mecha<br>Sodo |
| Uganda | Budaka<br>Kumi<br>Luwero<br>Oyam |
| Malawi | Balaka<br>Lilongwe Rural<br>Machinga<br>Nkhotokota |

Table 1 – The districts selected for Survey 2 in each country, based on the number and distribution of Survey 1 sites available.

| Survey 1 functionality category | Number of Survey 1 sites available across 4 districts | | | Number of Survey 2 sites selected | | | |
|---|---|---|---|---|---|---|---|
| | Ethiopia | Uganda | Malawi | Ethiopia | Uganda | Malawi | **Total** |
| **Good yield, good reliability** | | | | | | | |
| Good local WMA | 15 | 17 | 12 | 5 | 8 | 7 | **20** |
| Poor local WMA | 17 | 2 | 10 | 5 | 2 | 7 | **14** |
| **Good yield, poor reliability** | | | | | | | |
| Good local WMA | 4 | 8 | 11 | 4 | 7 | 8 | **19** |
| Poor local WMA | 6 | 3 | 16 | 6 | 3 | 7 | **16** |
| **Poor yield, good reliability** | | | | | | | |
| Good local WMA | 6 | 10 | 5 | 5 | 6 | 5 | **16** |
| Poor local WMA | 7 | 4 | 2 | 5 | 4 | 2 | **11** |
| **Poor yield, poor reliability** | | | | | | | |
| Good local WMA | 6 | 7 | 2 | 5 | 7 | 2 | **14** |
| Poor local WMA | 8 | 3 | 2 | 5 | 3 | 2 | **10** |
| **No flow in test** | | | | | | | |
| Good local WMA | 5 | 9 | 8 | 5 | 5 | 4 | **14** |
| Poor local WMA | 6 | 17 | 12 | 5 | 5 | 6 | **16** |
| **Total** | 80 | 80 | 80 | 50 | 50 | 50 | **150** |

Table 2 – The number of HPBs available across the four districts in each country; and, the final distribution of HPBs selected for Survey 2.