Reaching villages

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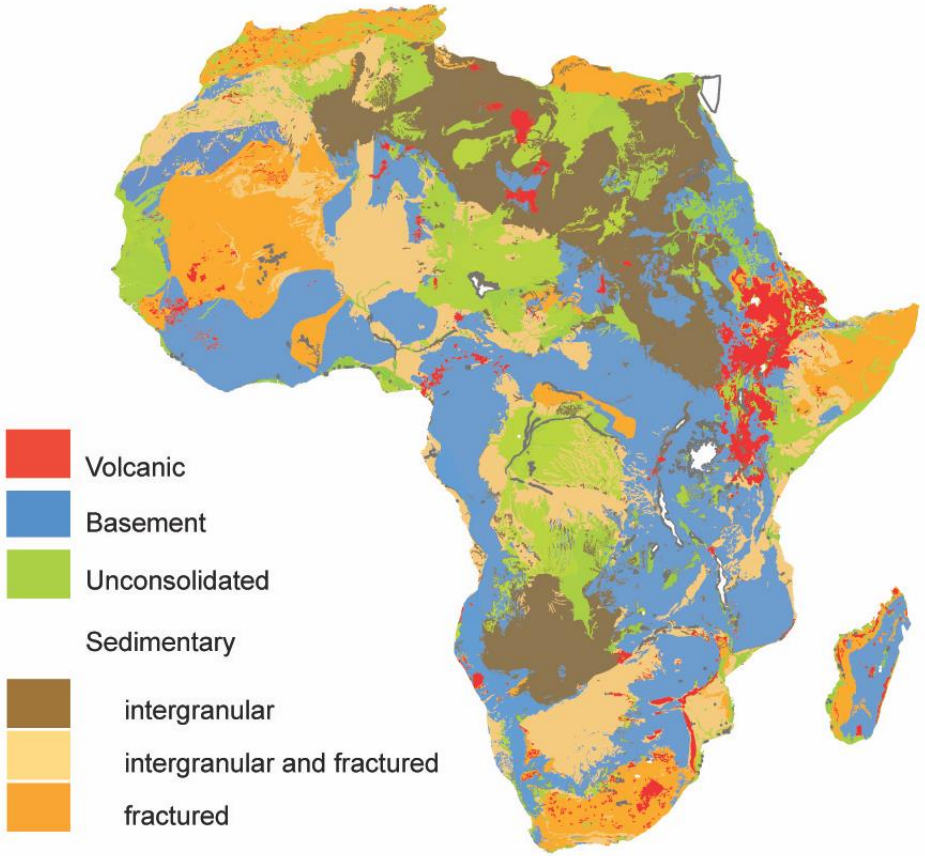
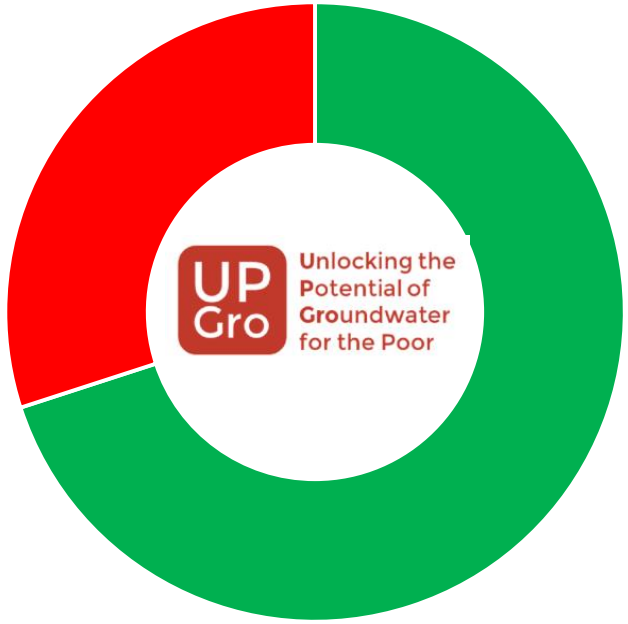
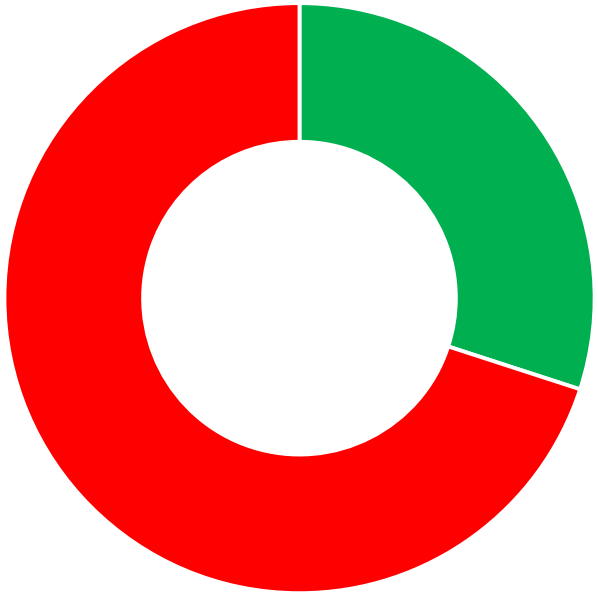
Situation:- Heterogeneous





Drilling success rate in easy hydrogeology environments

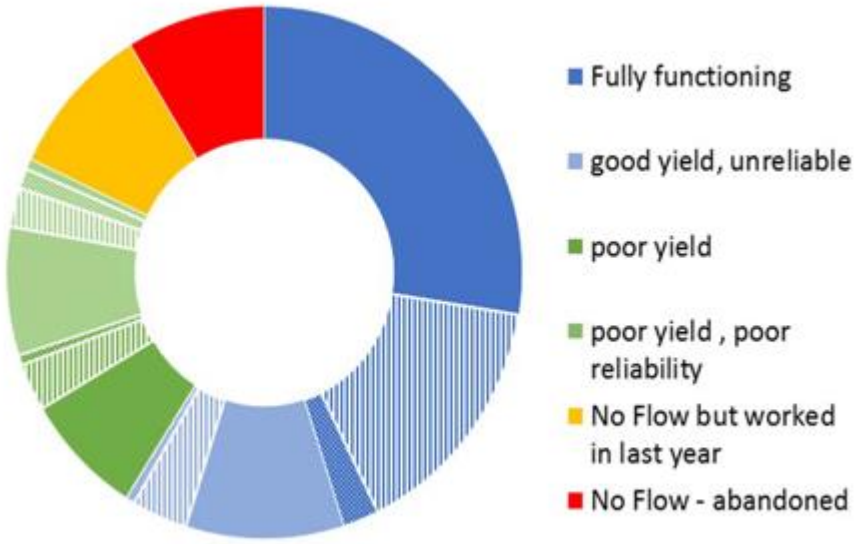


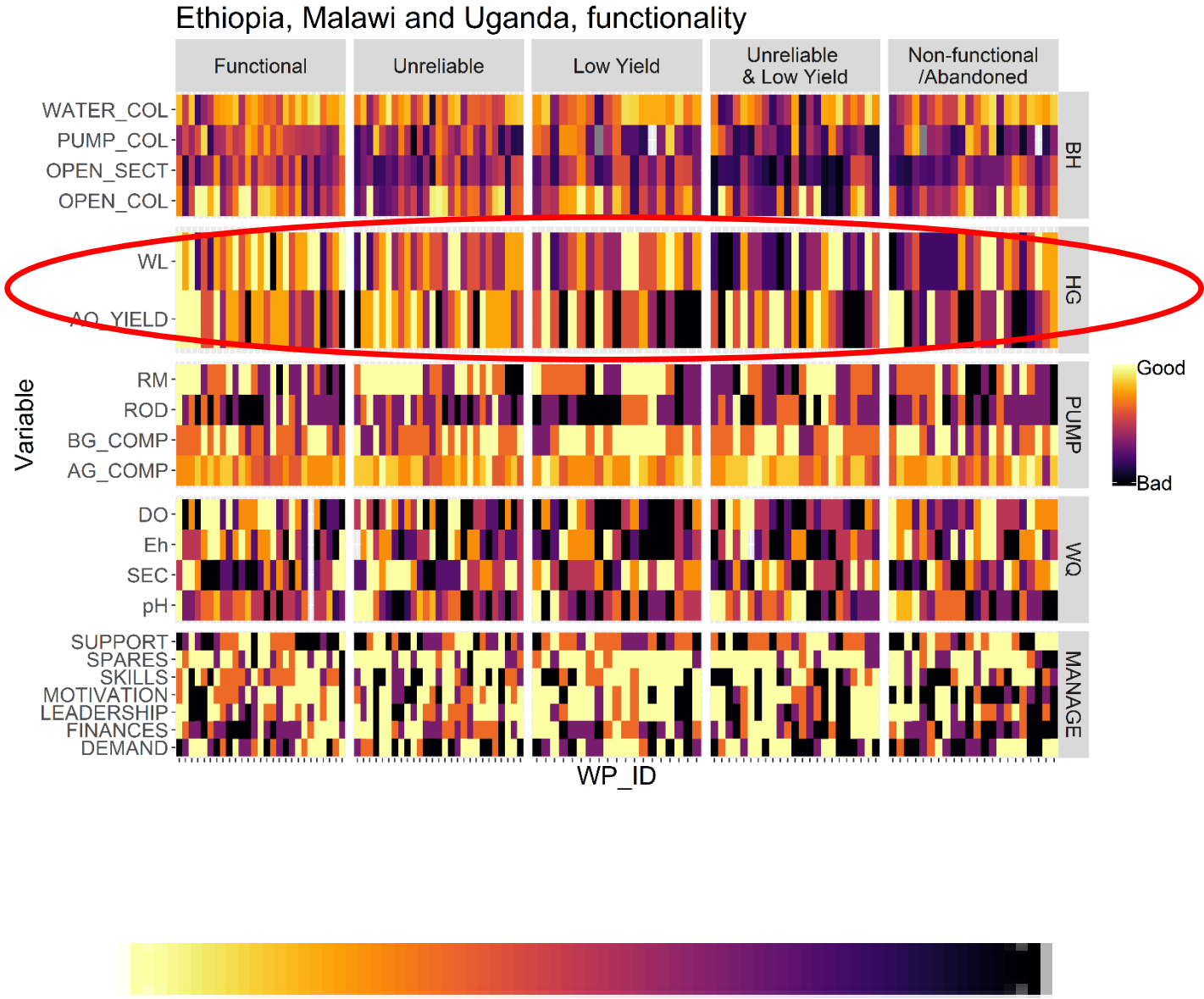
Drilling success rate in difficult hydrogeology environments

Where you are in the geophysical environment matters!

UP Gro Unlocking the Potential of Groundwater for the Poor

Situation: Applying definitions that matches the SDG indicators of access, the current functionality of HP is is around 35%

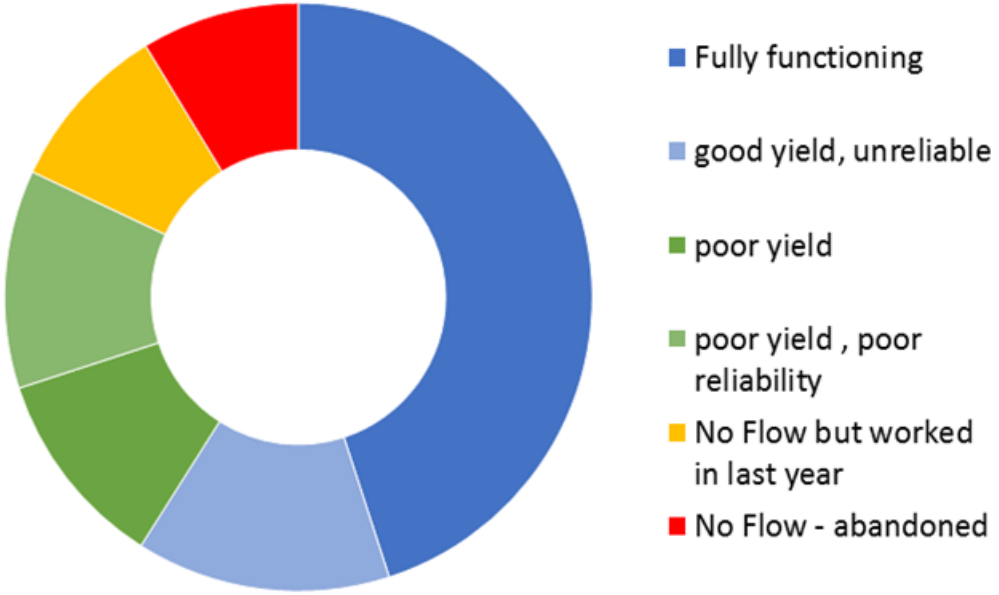




Unlocking the Potential of Groundwater for the Poor

Note: Maintainable/non maintainable
On BH vs Outside BH interventions

1. Sustaining existing water schemes through appropriate affordable management/maintenance modalities



The FundiFix model has four connected dimensions:

Affordable maintenance:

- Even community management approaches with intervention in the right leverage points
- WAVE
- FUNDFIX [REACH project]

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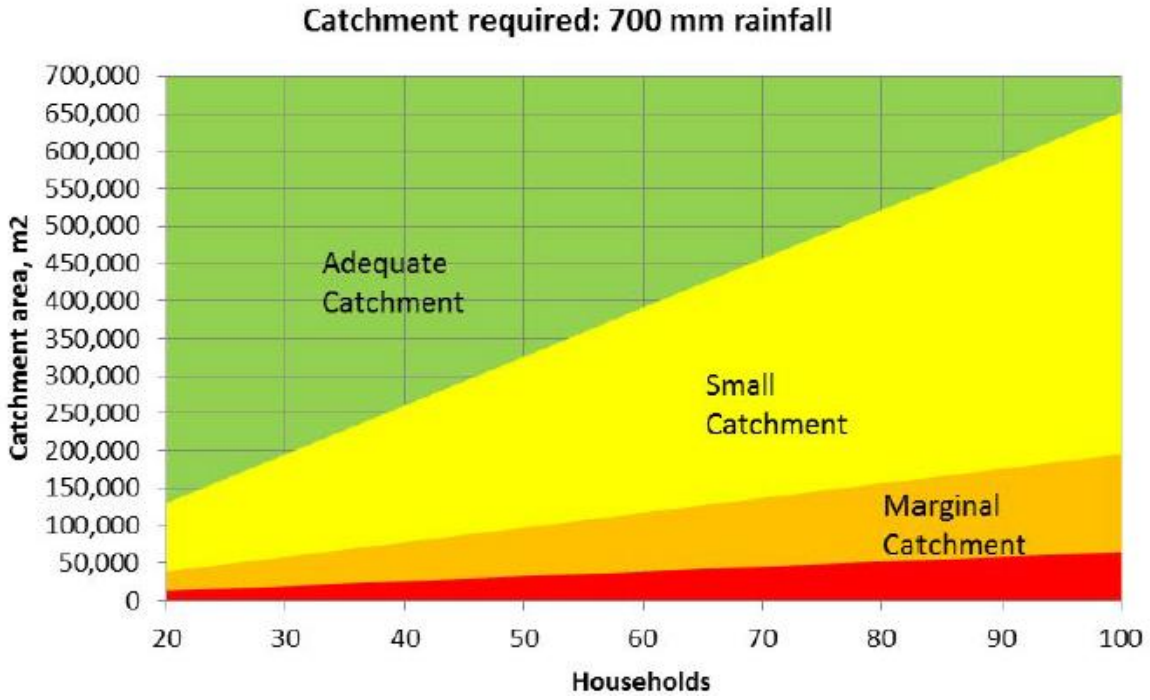
2. Proper sitting [geology + catchment + environment]



Calow et al., 2018

3. Altering the geophysical environments

- **Sustaining resources base through land(catchment) management interventions**
- **Small scale MARs [e.g. Grofutures project]**

Figure 5.3.1: Change in Perception among respondents on availability of enough water for livestock (between 2012-2017)

Source: IFPRI, WLRC & REACH Survey 2017.

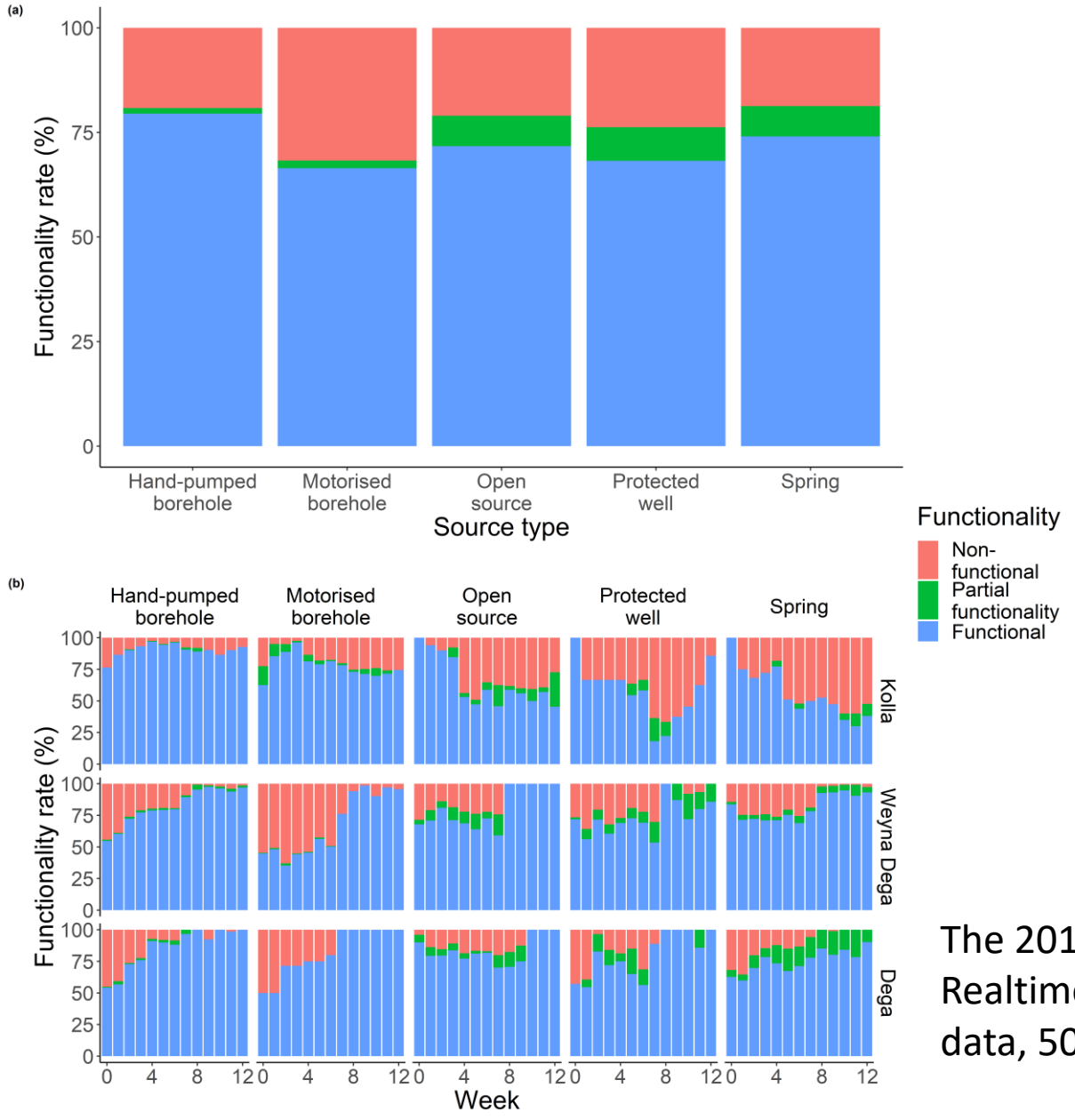
INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
IFPRI

WATER & LAND RESOURCE CENTRE
Water & Land Resource Centre
Addis Ababa University

REACH
Improving water security for the poor

In conclusion, sustainable land management using a comprehensive, learning-watershed approach is strongly associated with greater access to groundwater, better access to adequate livestock watering, significant impacts on yields on a limited crops - hence weaker impacts on overall crop income, but strong impacts on livestock income.

4a. Put the right access technology in the right place



The 2015-2016 Realtime monitoring data, 5000 schemes

MacAlister et al., 2020, Nature in Press (BGS+UNICEF+ODI+AAU)

UPGro Unlocking the Potential of Groundwater for the Poor

4b. Put the right access technology in right place

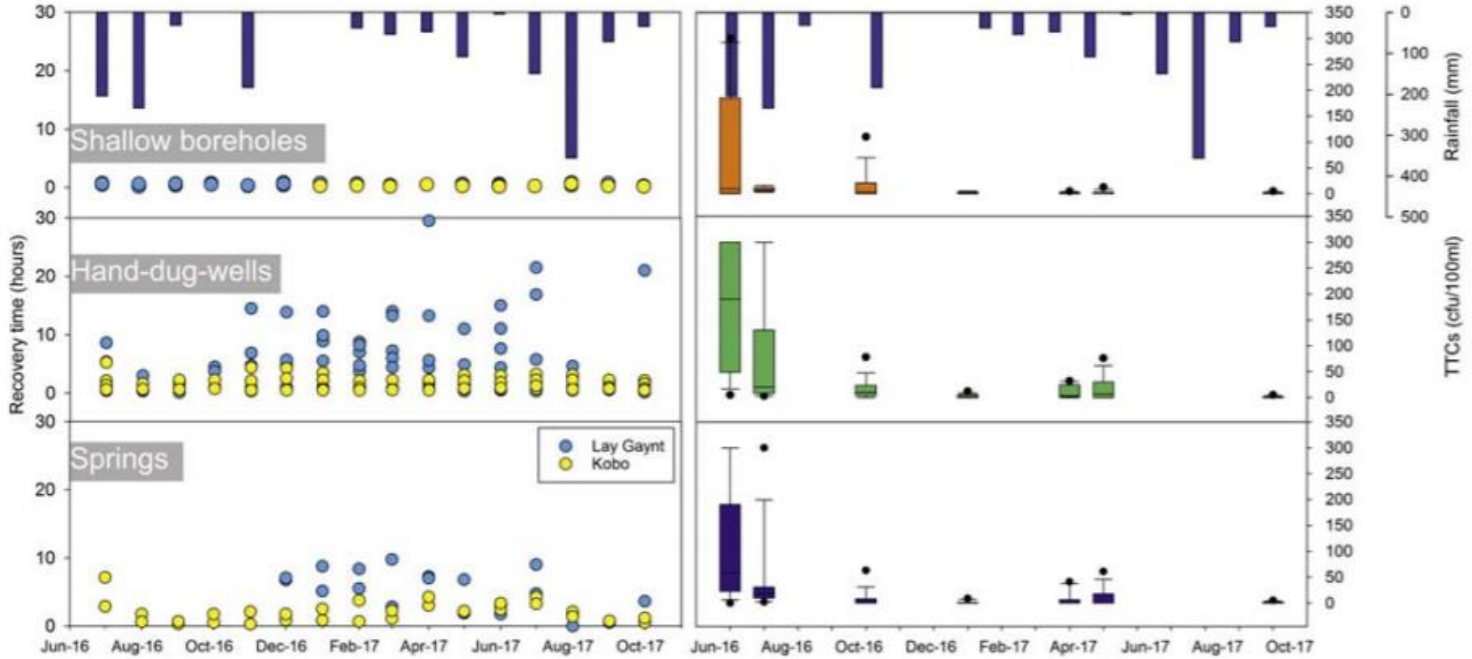


Figure 3. Performance of shallow boreholes, hand-dug-wells and springs measured by the time to recover to 50% of morning rest water level, monthly rainfall over the period from TAMSAT is shown for comparison. Summary TTC measurements at different times of the year for all measured sources are shown on the right: 15 shallow boreholes 17 hand-dug-wells, and 19 springs table S2 gives summary statistical data.

MacDonald et al., 2019

UPGro Unlocking the Potential of Groundwater for the Poor

Difficult hydrogeology environments

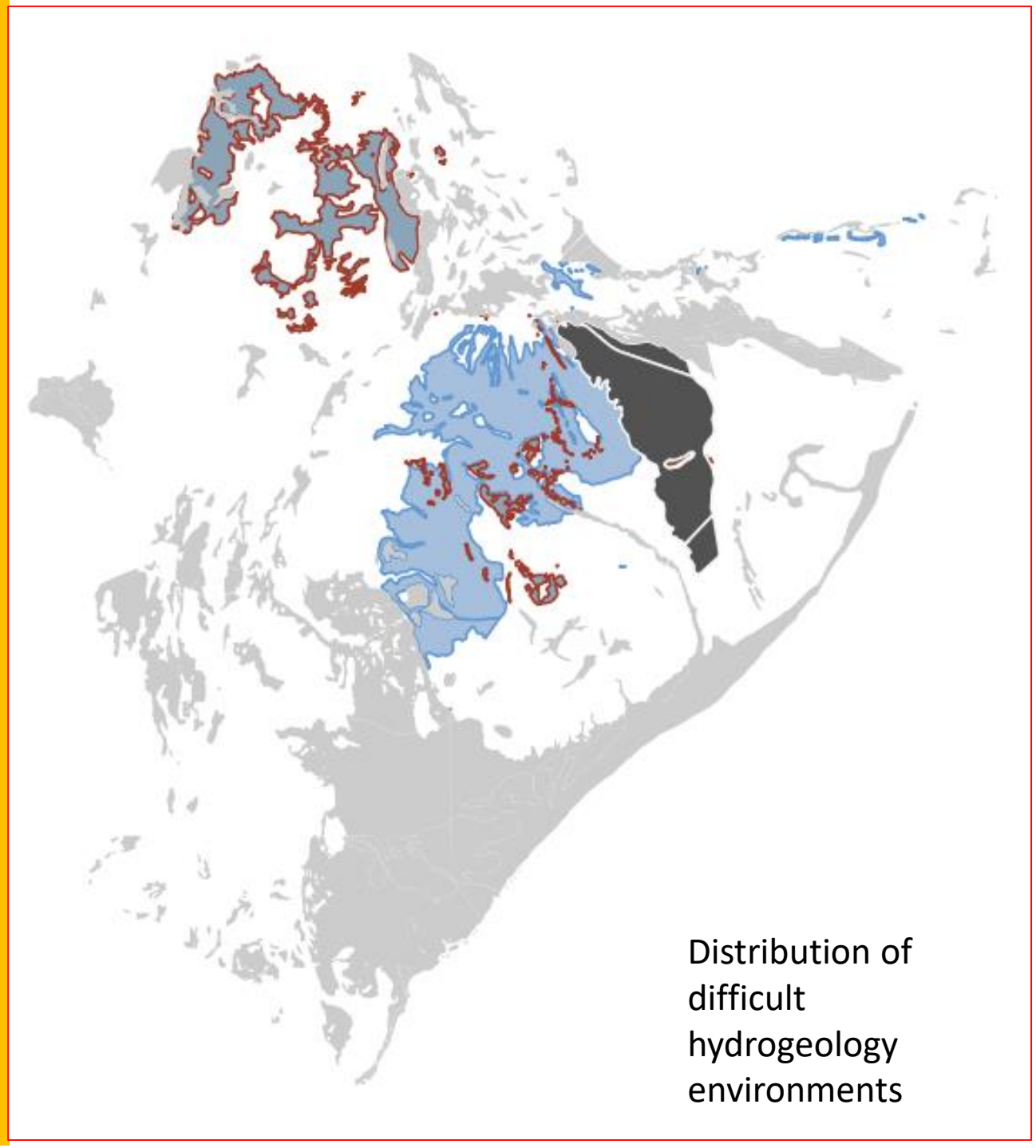
- Difficult Hydrogeology environments are subject to data availability bias (survival bias) (Kebede, 2020 in preparation)
- Difficult hydrogeology environments do not necessarily fit into the existing context/practice through which global WASH programs are designed

Attributes of difficult hydrogeology environments

- Very deep water table [>300 m]
- Poor water quality [high salinity, F, and other undesirable substances]
- High groundwater temperature
- Drilling difficulty – less than 1 m/day
- Pastoralism/agropastoralism is the mainstay of the economy
- WASH coverage is the lowest
- Aridity/episodicity

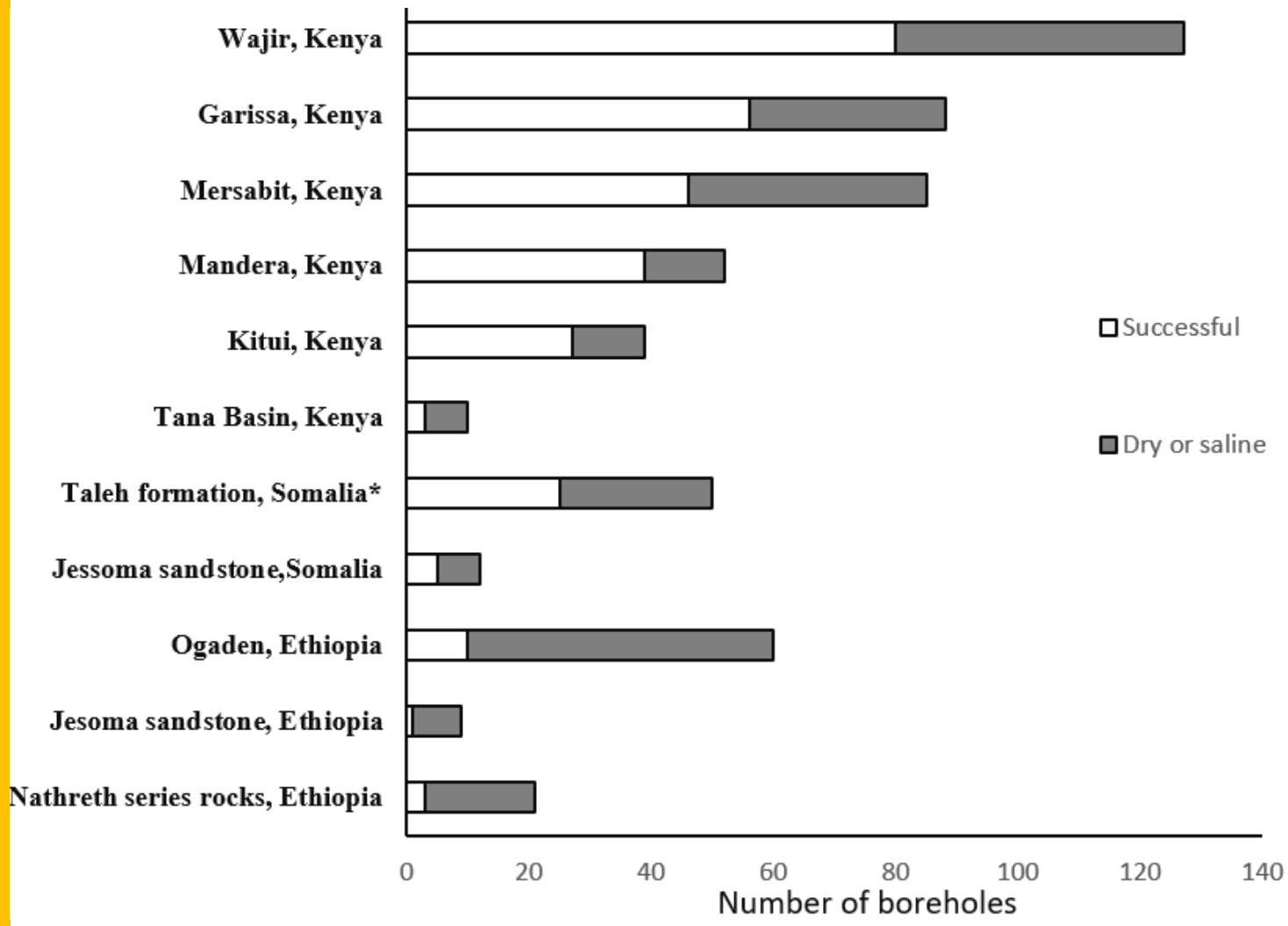
Regardless of these

Past WASH programs run on similar design basis as other easier environments and context under which technologies are chosen have been governed by what happens in the easy environments!



Distribution of difficult hydrogeology environments

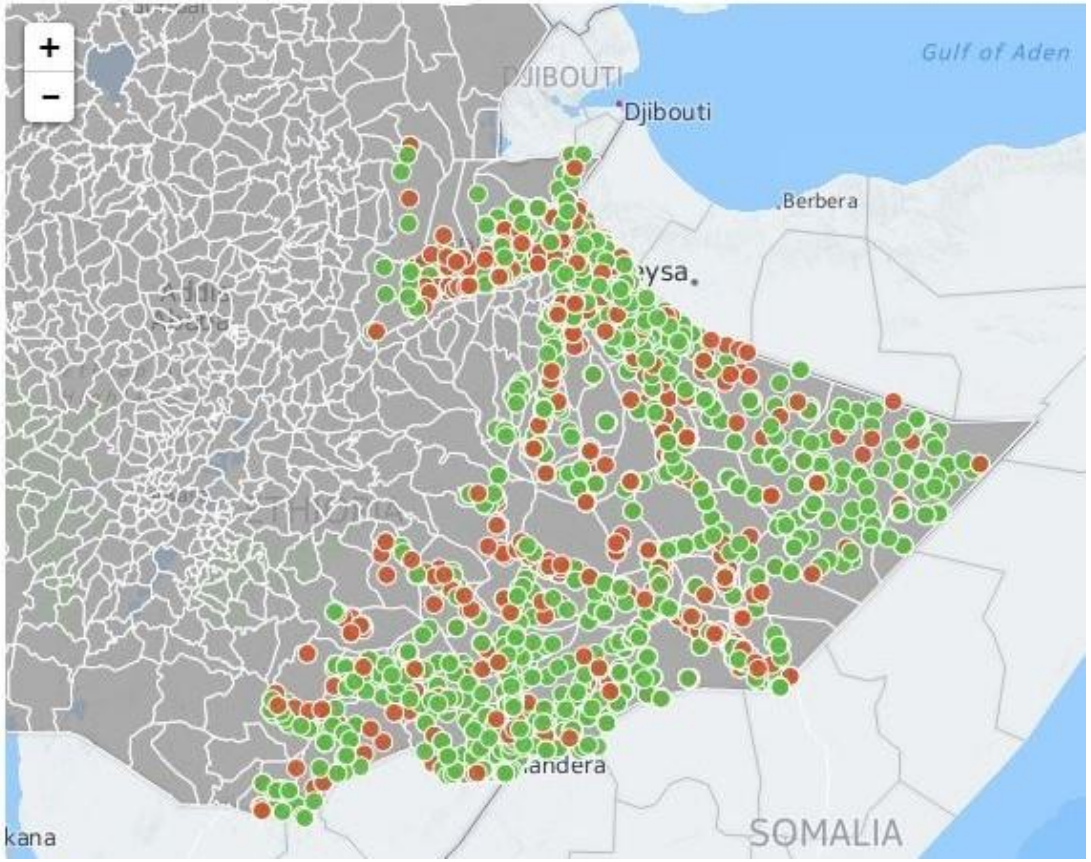
Context: High proportion of unsuccessful Boreholes in difficult hydrogeology environments: Kenya, Ethiopia, Somalia



Kebede 2020 in preparation

Protecting existing successful schemes through monitoring, asset management and workable maintenance models

Under severe conditions of water scarcity, it is vital to keep motorized boreholes pumping across Ethiopia's Somali region.



IRC/USAID/UNICEF

The most unusual approach is needed to reach communities in these environments if the leave no one behind agenda has to be met

- Protecting and monitoring strategic aquifers [e.g. Merti, Upper Awash in Ethiopia
- Explore local possibilities (including improving customary water management practices) not the specific pre-defined design!
- Multi-community Schemes (Ethiopia), inter basin water transfers (Merti Aquifer Kenya), expensive desalination plants (USAID, Afar Ethiopia)
- Monitoring and asset management

Thank you