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Self-supply in seven woredas

Report of a baseline survey for
Millennium Water Alliance Self-supply
Acceleration pilots

Lemessa Mekonta, Bethel Terefe, and John Butterworth
with contributions by Bekele Damte (Aqua for All)



Prepared by Lemessa Mekonta, Bethel Terefe and John Butterworth from IRC Ethiopia, with additional inputs by Bekele Damte from Aqua for All, on behalf of the Millennium Water Alliance Ethiopia Programme (MWA-EP). Self-supply Acceleration pilot activities within the MWA-EP are funded by the Conrad N. Hilton Foundation and the activity partners IRC, CARE, CRS, World Vision, Aqua for All and water.org. For further information please contact Lemessa Mekonta (coordinator of IRC Self-supply activities, mekonta@ircwash.org) or Melkamu Jaleta (MWA in Ethiopia Country Representative, melkamu.jaleta@mwater.org) who coordinates the overall pilot.

This report provides a summary of the findings of a baseline survey on Self-supply within seven woredas in Oromia and Amhara where MWA-EP partners are implementing an innovative Self-supply acceleration pilot. The baseline data collection was undertaken by woreda government officials, seeking to drive their further engagement in Self-supply acceleration activities. The findings provide a basis for both follow-up planning and measurement of the impacts of the pilot.

Unless otherwise indicated, all figures, illustrations and photos are by IRC.

IRC Ethiopia
PO Box 2, Code 1251, Addis Ababa
ethiopia@ircwash.org
www.ircwash.org/ethiopia



Self-supply Acceleration pilot activities within the MWA-EP are funded by the Conrad N. Hilton Foundation and the activity partners IRC, CARE, CRS, World Vision, Aqua for All and water.org. The Millennium Water Alliance is the 501(c)(3) consortium of leading charities helping to bring safe drinking water, sanitation, and hygiene education to the world's poorest people in Africa, Asia, and Latin America. MWA works with governments, corporations, foundations, individuals, and other NGOs to advance best practices, share knowledge, build collaborations, and advocate for greater commitment to this global goal.

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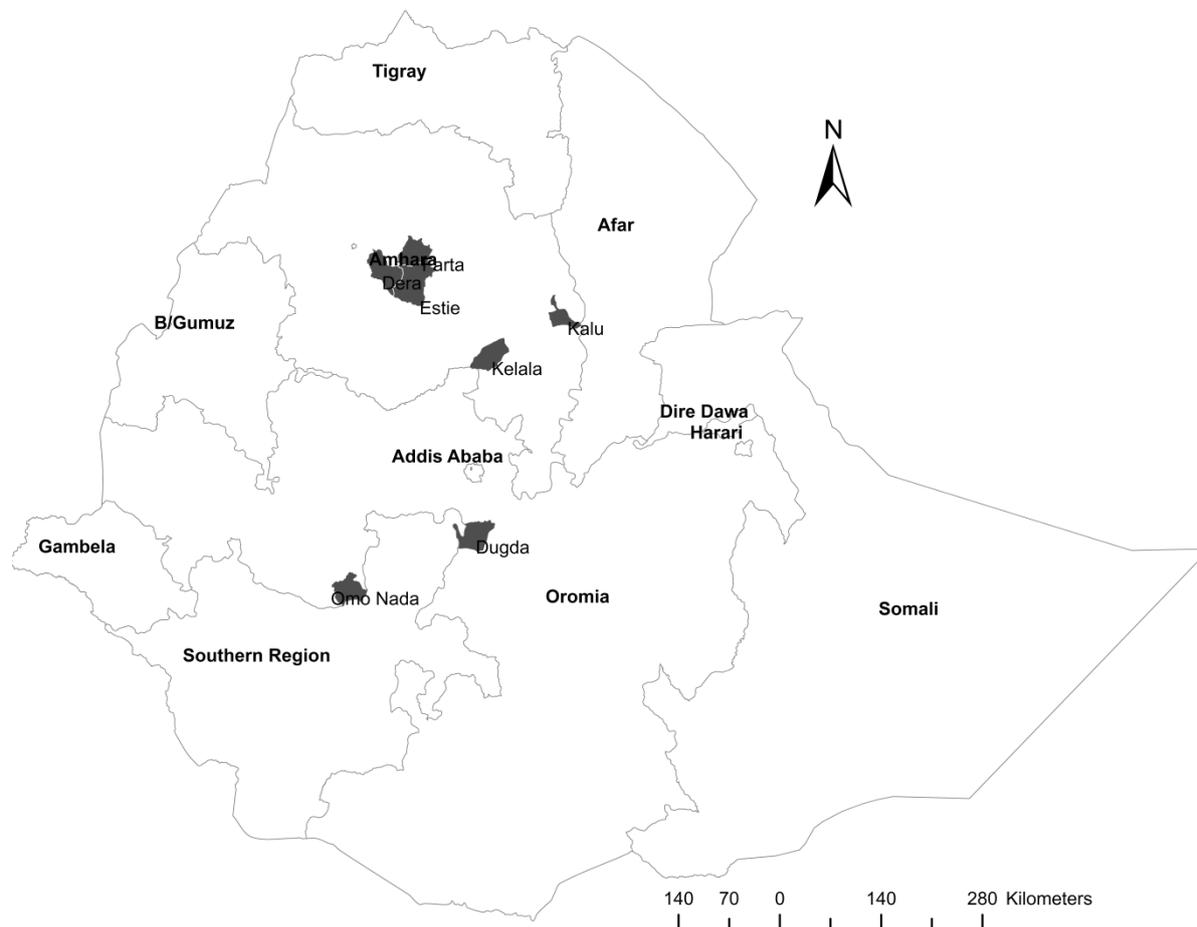
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Acronyms

ACSI	Amhara Credit & Saving Institute
CBT	Compartment Bag Test (for water quality testing)
CLTSH	Community-Led Total Sanitation & Hygiene
CRS	Catholic Relief Services
HEWs	Health Extension Workers
HWTS	Household Water Treatment and Safe Storage
IRC	ircwash.org
NGO	Non-Governmental Organization
MCS	Meki Catholic Secretariat
MFI	Micro-finance institution
MOWIE	Ministry of Water, Irrigation & Electricity
MPN	Most Probable Number (for fecal coliform bacteria counts)
MWA	Millennium Water Alliance
MWA-EP	Millennium Water Alliance Ethiopia Program
OWNP	One WASH National Program
PSNP	Productive Safety Net Program
TTC	Total thermo-tolerant coliforms
TVET	Technical and Vocational Education and Training
TT&T	Team Today & Tomorrow
UNC	University of North Carolina
WA	Water Action
WASH	Water, Sanitation and Hygiene

Figure 1: Location of woredas for MWA-EP pilot Self-supply acceleration activities



1. Introduction

Self-supply acceleration involves public (and Non-Governmental Organization (NGO)) investment in a set of activities that are intended to trigger private household investments in new and improved water supply facilities. These facilities are typically privately-owned but often shared with neighbours. Hand-dug wells that provide access to shallow groundwater are the most common type of facility, but Self-supply technologies can also include springs, rainwater harvesting systems and household water treatment and storage. Self-supply facilities may be used for drinking but are also commonly used for a range of other uses including bulk water supply for washing and sanitary purposes, watering of livestock and irrigation. They may be used by some households as the sole water supply, or in conjunction with other water sources such as community water supplies.

The Ethiopian government set out its policy to support Self-supply in 2012 (MoWE, 2012) and the One WASH National Programme includes Self-supply projects as one of its four service delivery models for rural water supply (MoWE, 2011). Two kinds of Self-supply are recognized. Group-led Self-supply involves small groups coming together to develop a joint facility, and these may be subsidized up to 50% of the capital investment costs. Household-led Self-supply involves individual private investment in water supply facilities and the capital investment costs are not to be subsidized.

The Millennium Water Alliance (MWA) is supporting the development of improved water supplies through both the group-led and household-led investment models. While the original intention was to give more emphasis to piloting and providing a proof of concept of a Self-supply Acceleration approach to help drive household investment, the early focus of MWA partners was put on the group-led Self-supply model. This is rather similar to existing forms of community water supply and is therefore easier for NGOs and the government to implement within their existing capacities. On the other hand, supporting household-led investment requires a social marketing and market-led approach that is more similar to promoting Community-led Total Sanitation and Hygiene (CLTSH), sanitation marketing or household water treatment. Such approaches are novel within the water sector, which lacks a tradition of working directly with individual households.

The Self-supply Acceleration approach being tested by MWA partners is set out in a set of guidelines developed with the participation of MoWIEs Self-supply task force and consistent with MoWIEs Self-supply manual published in January 2014 (IRC, 2013; MoWIE, 2014). The intention is to update the planning guidelines based on the pilot results.

This report summarizes the findings of a baseline survey in the seven woredas where the Millennium Water Alliance is piloting the Self-supply acceleration approach.

Further information on existing Self-supply facilities and their use in rural Ethiopia is available in the report 'A hidden resource' (Sutton et al. 2012), Butterworth et al. (2013) and related publications.

Aims of the Self-supply acceleration pilot

The aims of the MWA Self-supply acceleration pilot are to:

- 1) provide proof-of-concept of a Self-supply Acceleration approach to trigger and support household-led investments in improved water supplies;
- 2) develop active water credit programs in each of the seven woredas, with at least 1,100 loans extended to support Self-supply investments;
- 3) strengthen the local private sector servicing Self-supply, with at least two businesses in each woreda providing new or improved products or services;
- 4) reach 35,000 people with improved water supplies¹ through household-led Self-supply (investments in 1,400 new or upgraded wells).

2. Aims of the Self-supply baseline study

The aims of the Self-supply baseline study were to:

- 1) provide a baseline of existing Self-supply facilities and their performance against which the achievements of the Self-supply Acceleration pilot can be assessed;
- 2) provide information for the planning of Self-supply acceleration activities in the pilot woredas;
- 3) encourage engagement of critical stakeholders in Self-supply acceleration and to strengthen their skills and knowledge.

The study methodology was designed to meet all these objectives, with a balance struck where necessary and some compromises made.

The baseline is complementary to additional information provided by a programme wide baseline study undertaken for MWA by Emory University, which is based upon fully randomised sampling. This wider study provides some information on Self-supply at the household level in these woredas, but this is limited by the relatively small sample of such facilities and broader scope of the survey.

Initially the focus was on household-led investments, although the Self-supply baseline was extended to address the group-led model as it emerged that this was a key focus of the partners. The objective here was to:

- 4) document how the group-led approach was being implemented by MWA partners and to assess its cost effectiveness and service levels.

3. Methodology

Key questions

The baseline survey was designed to answer the following questions at the end of the Self-supply acceleration pilot i.e. in mid-2017.

¹ Through the group-led model it is also expected that 20,000 people will be provided with access to improved water supplies.

- How many privately owned Self-supply facilities were constructed or improved during the project timeframe, and how many people benefited? To what degree (level of technology, level of protection) were facilities built or improved? *The target is to trigger improvement of 1,400 sources serving 35,000 people (i.e. assumption that wells are shared by on average by 25 people).*
- How has microbial water quality (*E. coli*) changed during the project timeframe and can this be related to project interventions? *The target is ultimately zero or low risk water supplies, but the interest is to show whether Self-supply acceleration can achieve progressive improvements and narrow the gap in water quality performance with communal supplies.*
- How much public/NGO investment has been made in Self-supply acceleration, and how much household investment has been leveraged by this investment? *Anticipated investment is expected to be the range US\$ 10-20 per capita within the targeted kebeles; it is expected to leverage double that investment by households.*
- How many households have taken Micro-finance institution (MFI) loans or used other sources of finance to make these investments? *The target is uptake of 1,100 loans.*
- What is the degree of engagement of private sector businesses in providing products and services for Self-supply? *The pilot aims to increase the number of businesses offering goods and services of different types (well digging/drilling, protection, pumps, Household Water Treatment and Safe Storage (HWTS) etc.), and support the growth of these businesses and the markets served. The target is at least two strengthened businesses operating in each woreda.*

This baseline report presents and discusses the initial findings related to these areas.

Surveys

Five survey instruments were developed:

1. A household survey was targeted at households with existing Self-supply facilities. In total 2,161 owners of facilities were surveyed. The survey included a) basic details b) a repeat survey² with questions on well characteristics, lifting devices, hygiene and sanitation, well performance/ reliability, use, satisfaction, sharing and interest to improve and c) source water quality assessment using the compartment bag test for *E. coli* contamination for a sub-sample of facilities (221).
2. An enterprise survey was targeted at businesses providing WASH products and services. The survey included a) basic details and b) business details.
3. A financial institution survey was targeted at MFIs on a) basic details and b) lending policies and portfolio.
4. Key informant interviews were guided by a checklist with questions on water supply, local businesses and finance. Interviews were undertaken with woreda officials (Water, Agriculture, Administration, Health, and Finance), kebele cabinet members (Kebele manager, kebele chair person, Development Agents and Health Extension Workers (HEWs)). A wealth ranking assessment was undertaken with key informants to identify locally relevant categories for relative wealth ranking of households responding to the household survey.
5. A group-led Self-supply survey was added midway through the survey and targeted areas where MWA-EP had supported the development of facilities under the group-led Self-supply model.

² The repeat survey was designed to make it simple to revisit the same households and collect updated information on these facilities using related AKVO FLOW functionality.

Data was collected using smartphones and the Akvo FLOW data collection app. The surveys used are included in Annex 1.

Sampling

In each woreda, priority kebeles for Self-supply acceleration had already been identified by partners on the basis of their potential (including availability of shallow groundwater resources). The numbers of prioritised kebeles was in the range 1- 6. Where the number of existing household level facilities in these kebeles was considered manageable e.g. up to 50-100 households per kebele, all facilities were then visited, mapped and the household survey administered. Where the number of existing sources was too high in a prioritised kebele (this was only the case in Dera), village(s) with the most potential for Self-supply were selected and all facilities in those villages were surveyed.

However, this sampling procedure was not followed in the case of Kalu woreda where all the Self-supply facilities were household rainwater harvesting ponds. In the selected kebeles, the survey was stopped when 500 ponds had been surveyed.

Water quality tests were taken for every 10th Self-supply facility surveyed, using the next facility as a replacement in cases where water could not be obtained from the source.

Key informant interviews with local officials and professionals were used to collect information on the estimated number of Self-supply facilities as well as the presence of relevant business types and financial institutions active in the woreda. Typically interviews were with staff from water, health, agriculture, finance and Technical and Vocational Education and Training (TVET) office. A snowballing approach was then used to extend the list of businesses and financial institutions with a simple survey administered to each.

The survey of group-led facilities included 25 facilities constructed in Dera, Este and Dugda woredas by CARE and Meki Catholic Secretariat (MCS)/ Catholic Relief Services (CRS). Follow-up assessment on costs of construction and sharing of investments however used data from 58 group-led Self-supply facilities implemented by MWA partners, including those not included in the survey, from Farta, Dera, Este and Dugda woredas.

Table 1: Survey details in the seven woredas

Woreda, Region	Partner	Survey kebeles (No)	Household Self-supply facilities surveyed (No)	Water quality tests (No)	Group Self-supply facilities surveyed (No)	Enterprises surveyed (No)	Finance institutions surveyed (No)	Key informants interviewed (No)	Notes
Omo Nada, Oromia	World Vision	4	280	59	-	8	2	6	All gots/ ketenas (sub-units) in the survey kebeles were covered
Dugda, Oromia	CRS/MCS	4	500	50	8	19	5	6	
Kalu, Amhara	CRS/WA	2	500	25	-	3	1	5	more than 500 facilities in these two kebeles, but survey stopped here when 500 sites surveyed
Kelala, Amhara	CRS/TTT	4	20	3	-	3	1	6	All gots/ ketenas in the survey kebeles were addressed
Dera, Amhara	Care	1 Got	498	47	3	2	2	2	May have included some facilities in neighbouring Got
Farta, Amhara	Care	6	275	25	-	4	1	8	All gots/ ketenas in the survey kebeles were addressed
Este, Amhara	Care	5	110	12	12	1	3	3	

Approach

As far as possible, data collection was undertaken by woreda officials with relevant roles in water supply. The intention was to promote ownership and understanding of the data collected, support development of their skills and knowledge and encourage further involvement in Self-supply planning.

In each woreda, the lead NGO partner set up the survey with the support of IRC and MWA. There was some variation between woredas in the way the survey was implemented.

In Omo Nada, the survey was undertaken from February–March 2015. Here the woreda assigned five enumerators from the Water, Administration, Health and Irrigation Offices. Training was provided to the five woreda staff members and World Vision field staff on the objectives of the survey, sampling approach, survey instruments and water quality analysis as well as how to use the mobile phones for the survey. IRC then coached and supported the team directly for the first week of the survey with the remaining two weeks of the survey being supervised by World Vision Omo Nada Area Program with remote supervision and support from IRC (in Addis Ababa). World

Vision arranged enumerator per diems and transport, while data cleaning, analysis, and report writing was completed by IRC.

Results of the Omo Nada survey were also reported in an interim report (Mekonta et al., 2015).

Subsequent surveys were delayed, being completed in the period November to December 2015. Four field teams were established; each led by an IRC team member. All of the IRC supervisors were engaged in the survey in Dugda initially to ensure common approach. In Dugda, CRS's local partner MCS facilitated the implementation of the survey with four enumerators assigned from woreda Offices (Water, Irrigation and Administration).

In the case of Farta, Dera and Estie, a centralised training was held in Debretabor. Since CARE field staff were new to Self-supply, survey training followed training in Self-supply basics for the three woreda enumerators, supervisors, zonal water office and CARE staffs. Private enumerators (four for each woreda) were used for Dera and Farta under the close supervision woreda government officials (Water Office in the case of Farta and Agriculture Office in the case of Dera). In Estie woreda, the enumerators were woreda government staff members. IRC conducted the business enterprise and financial institution surveys.

In Kelela and Kalu, CRS facilitated the surveys through Water Action in Kalu and Team Today & Tomorrow (TT & T) in Kelela. Both woredas assigned government staffs for the data collection (enumerators) with the support of the NGO partners. Kebele selection for the baseline survey was challenged in Kelela as the potential kebeles previously listed during the Bahir Dar Self-supply Acceleration training (intervention areas of TT & T) were said to not have potential. However, the newly identified potential kebeles were outside the intervention areas of TT & T. TT & T agreed to vary their implementation areas to address this issue. In the case of Kalu woreda, the initially identified potential kebeles were accepted for the baseline survey though the type of Self-supply technologies in this area were restricted to rainwater harvesting ponds. In Kalu and Kelela, the surveys were fully supervised by IRC from start to finish.

The initial results from all woredas were shared in December 2015 with the partners and woredas in the form of summary presentations with key findings and recommendations to support Self-supply acceleration activity planning.



Photo 1: Enumerator training in Omo Nada



Photo 2: Sampling for the Compartment Bag Test.



Photo 3: Woreda enumerators in Farta



Photo 4: Training woreda enumerators in Amhara

4. Results

Household-led Self-supply

Investors

The survey assessed the profile of households owing Self-supply facilities with respect to wealth, education and gender. Households in all wealth categories have such facilities, although the majority of the households (80%) in the survey categorized themselves as belonging to the middle wealth group.

Figure 2: Wealth categories of owners by woreda

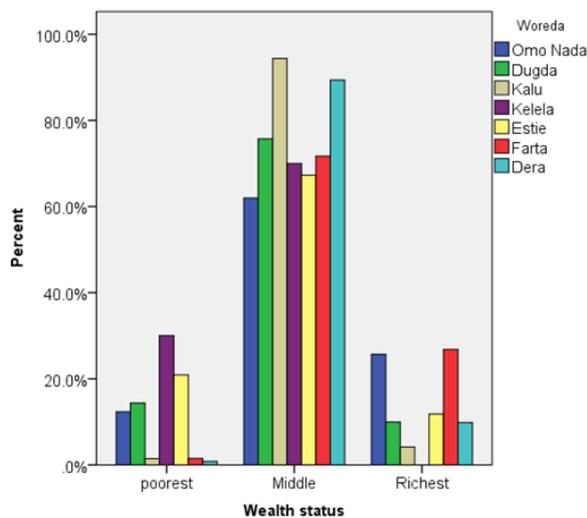
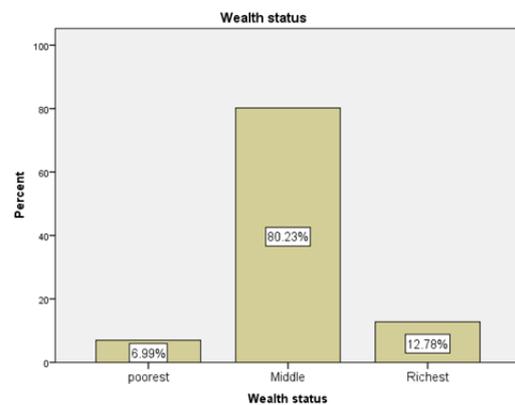


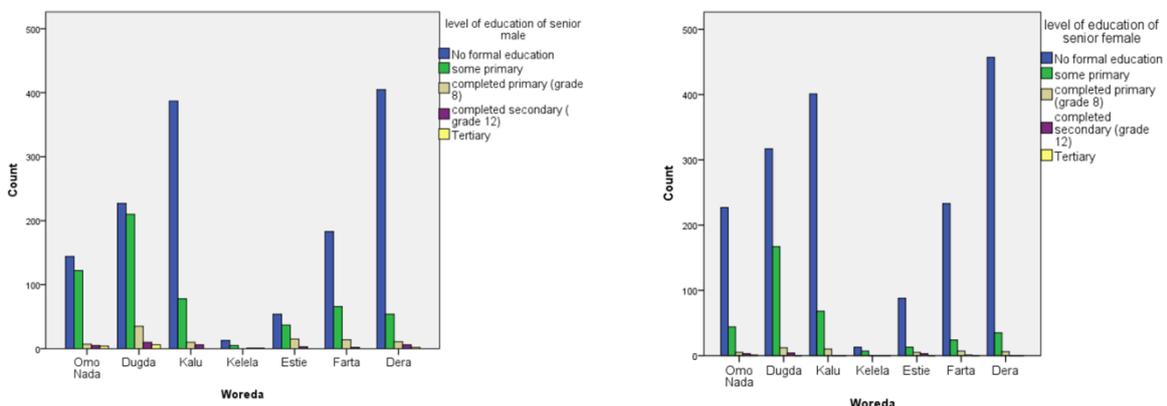
Figure 3: Wealth status of owners (all woredas)



While the senior males of the households with Self-supply facilities are more likely to be educated than their female counterparts, education levels are low across the board, with 65% of men and 81% of women leading families with Self-supply facilities having no formal education. Better male education levels are recorded in Dugda, Este and Omo Nada woredas, while for women, education levels are very low across all the woredas except Dugda.

Figure 4 Levels of education for senior family members owning Self-supply facilities

(a) males on left, (b) females on right

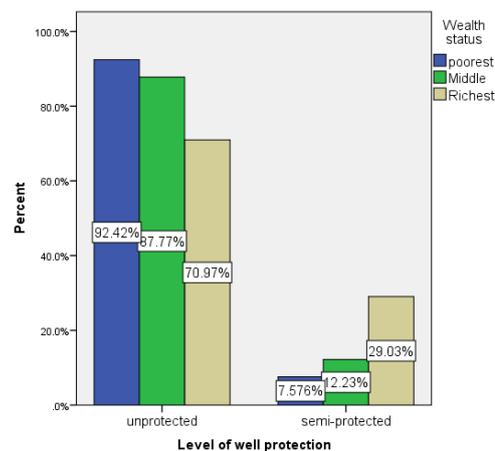


Well ownership amongst female-headed households is very low. Only 9% of the facilities (194) are owned by women or female-headed households. The average percentage of female-headed households in rural areas is 23% according to the 2011 demographic and health survey. The proportion of female well owners is 2.5 times less than would be expected extrapolating from

this statistic. Compared to male-headed households, more female-headed households also fall in the poorer wealth category and less belong to the richer households.

Investment in Self-supply facilities is influenced by wealth. Taking the level of well protection as a proxy indicator for total investment and excluding those households who have received subsidy, ownership of a better protected well (semi-protected; 270 or 16% wells were in this category) is more common among the wealthier households. Compared to poorer households, better off households have also made more investments in construction materials, simple lifting devices and lining for ponds, while poor households invested more in local materials and labour (these issues are discussed further in the next section). Ongoing improvement of wells is also slightly more common among the richer households.

Figure 5 Level of well protection by wealth category



Only 23% of the wells owned by female-headed households fell into the semi-protected category, while the corresponding figure was 36% for wells owned by male headed households, indicating a bigger gap in investment and improved management of wells among female headed households.

These findings suggest that interventions should be targeted to the needs of women and female-headed and poorer households to help them upgrade their Self-supply facilities.

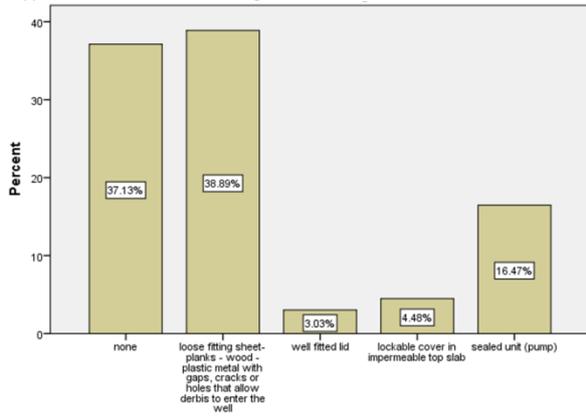
Investments

The survey included questions on the initial investments made by households for the construction of their facilities, as well as costs incurred for improvements and maintenance. The level of well protection, meaning well lining, headwork and lifting device installation, can also be used as a proxy indicator for levels of investment made by households. Although, households have all made some amount of investment during initial construction of wells, these are generally low-cost facilities requiring limited capital.

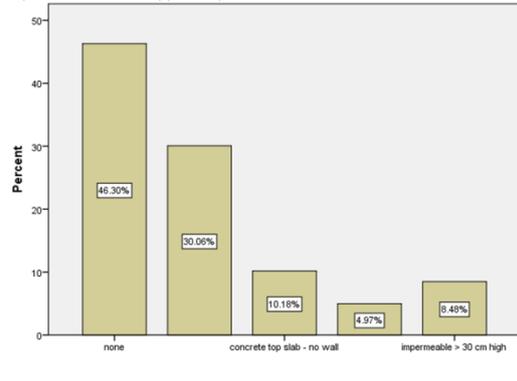
Most of the wells surveyed are shallow at up to 15 metres depth. Typically they lack a cover or have a rudimentary loose cover, few have a proper wall at the well mouth, neither lining nor an apron, and while the mouth is raised above the ground in some cases, over half of the wells were assessed to allow surface runoff to enter the well. A further quarter (27%) of the wells, are vulnerable to near surface infiltration. Many owners (64%) reported that water stands within five metres of the well mouth during the rainy season. Lifting devices are also basic with about half the owners having invested in a simple rope and bucket or tyre and a further 31% using a rope and bucket with a pulley. Rope pumps were used by 17% owners.

Figure 6 Key well characteristics

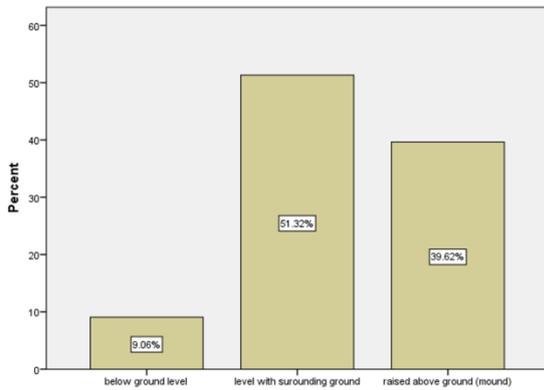
a) type of well mouth covering



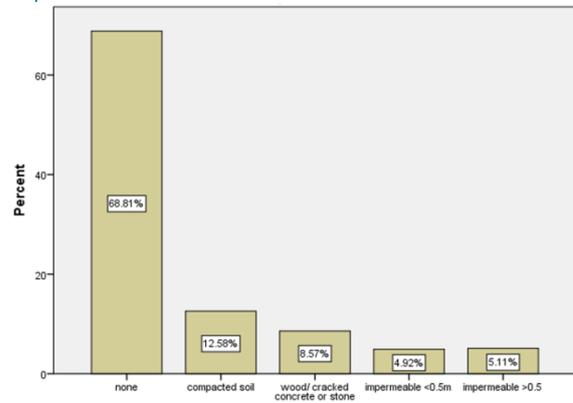
b) presence and type of protective wall



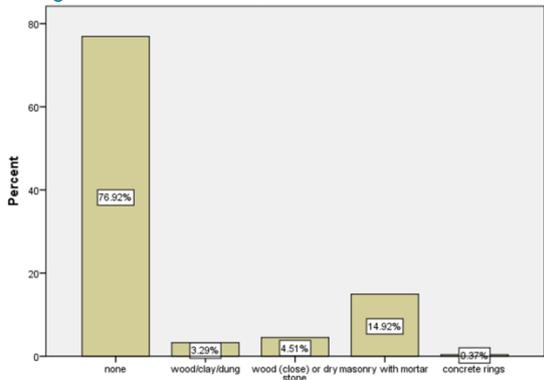
c) level of well mouth



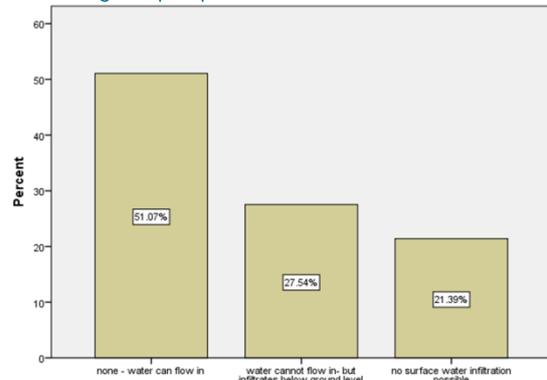
d) apron



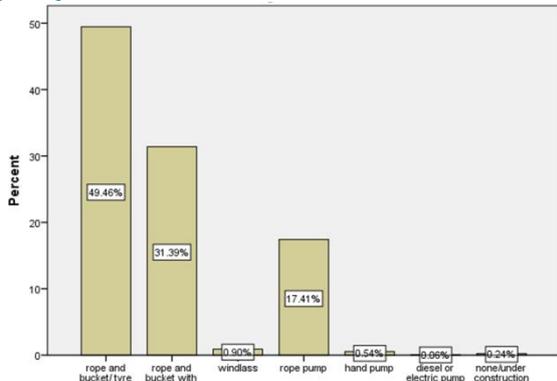
e) lining



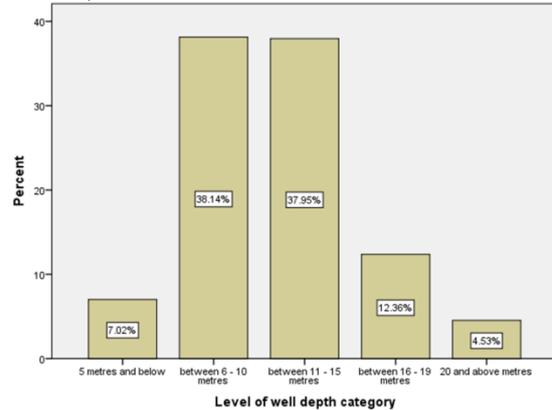
f) seal (lining and parapet)



g) lifting device



h) well depth



Most of the facilities (70%) were constructed by households using their own labor or the support of friends and neighbours without payment. Less than one fifth (17.6%) hired skilled local

artisans. Where households purchased products during construction of the facilities, which was true for 82% of the cases, half of the products purchased are local materials like a rope and bucket or simple lifting devices, such as pulley or windlass. Very few purchased construction materials like cement or low cost pumps like rope pumps. Kalu is the only exception where households paid for lining of ponds used for irrigation.

Figure 7: Modes of construction a) all woredas, b) by woreda

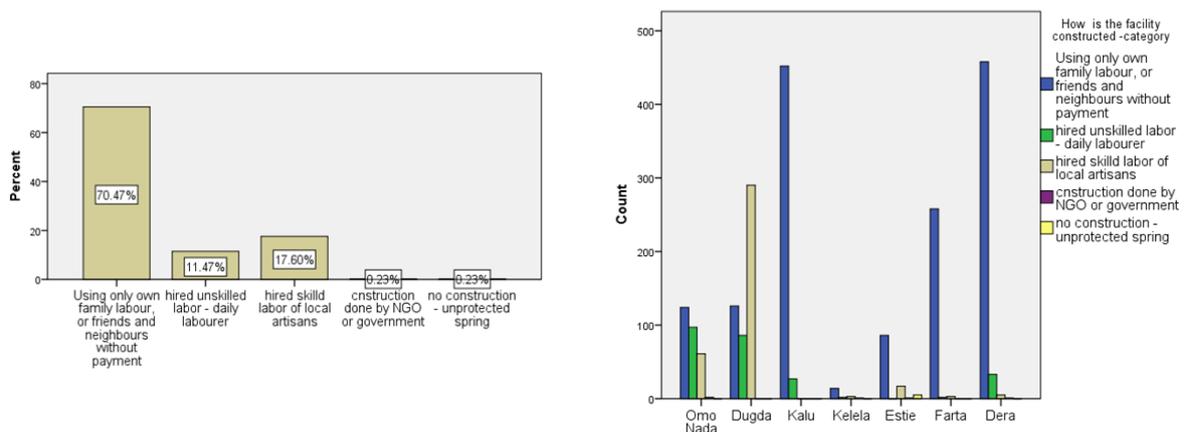
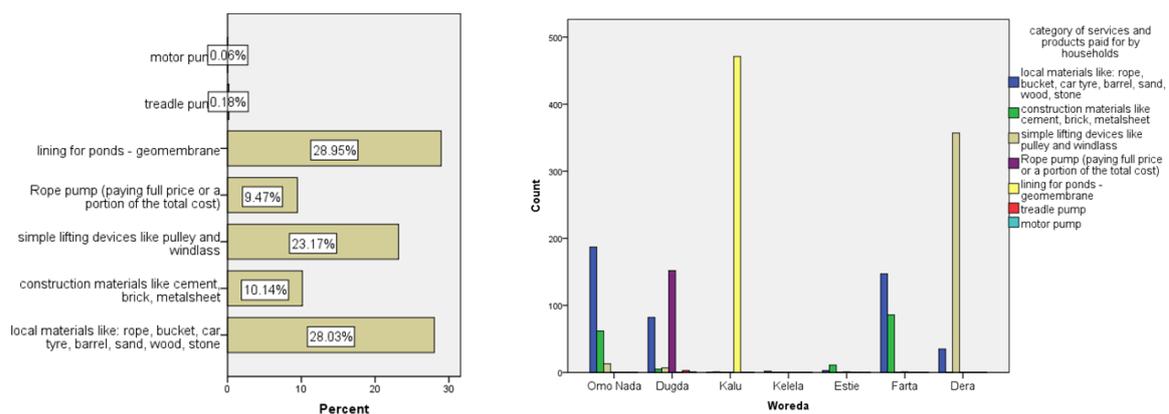


Figure 8: Types of investments made by households during construction of facilities a) all woredas, b) by woreda



Ongoing improvement and maintenance and of Self-supply facilities are also typically less capital intensive investments. The most common ongoing maintenance across the woredas was the cleaning of wells and ponds (44%), while very few cases of maintenance of lifting devices and pond linings are reported. About a third (36%) of the households have not undertaken any maintenance at all. Some 30% of well owners made improvements to their Self-supply facilities, mostly in Dera and Omonda. The most common type of improvement is deepening of wells in Dera driven by expanding irrigation for khat production and increasing demand for water, and upgrading of lifting devices in Omo Nada.

Figure 9: Maintenance of Self-supply facilities a) all woredas, b) by woreda

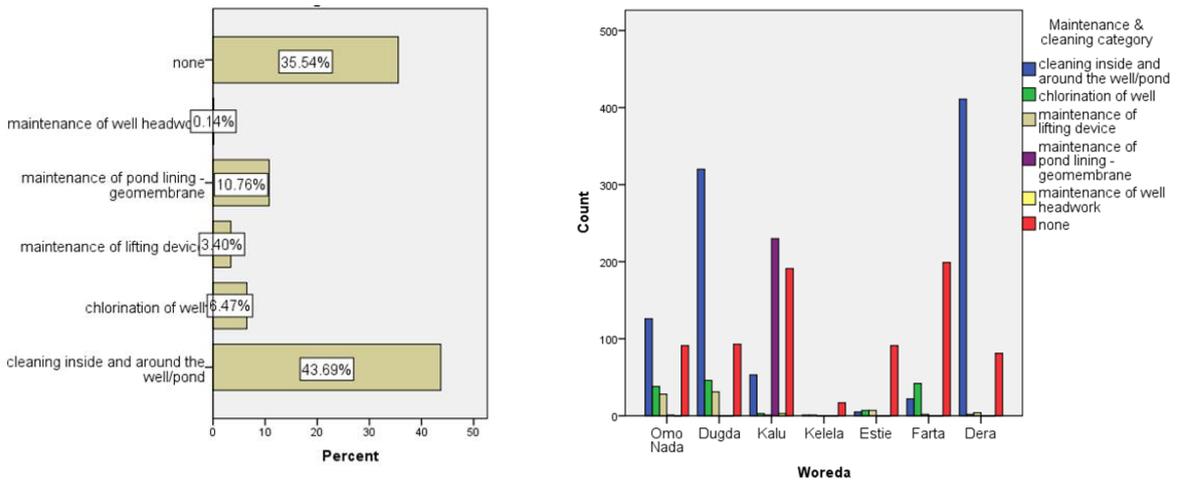
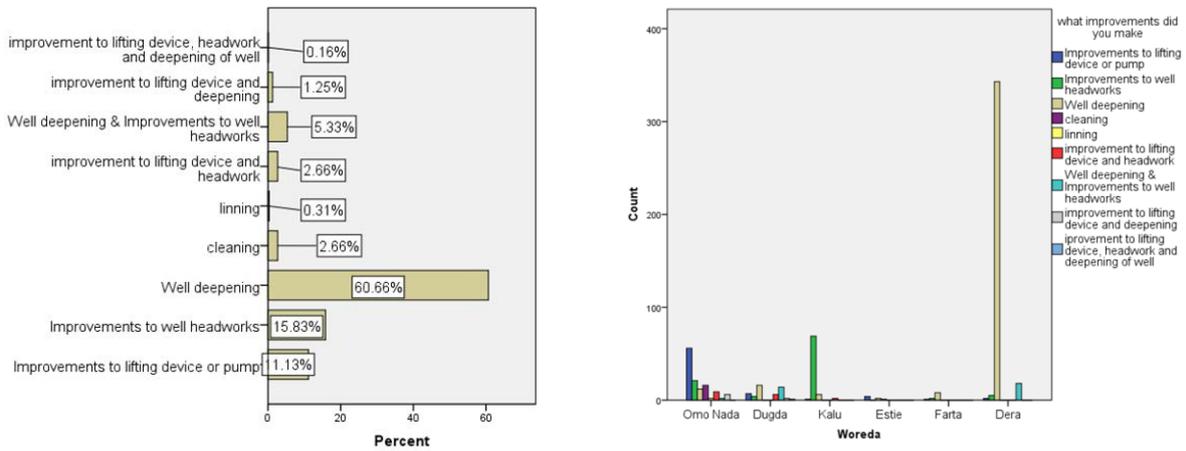
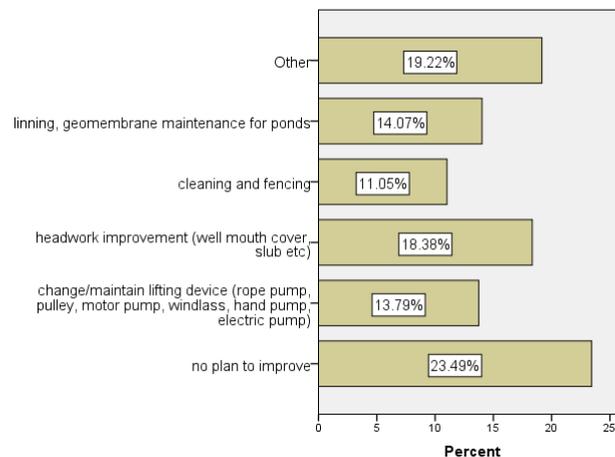


Figure 10: Improvements of Self-supply facilities a) all woredas, b) by woreda



The survey indicates a significant proportion of the households 76% have aspirations for future improvement of wells, which might also indicate willingness to invest. Most want to improve the head work of their wells, well mouth cover and slab, upgrade lifting devices to higher levels of technology and some want to improve well lining.

Figure 11 Future investment aspirations of households

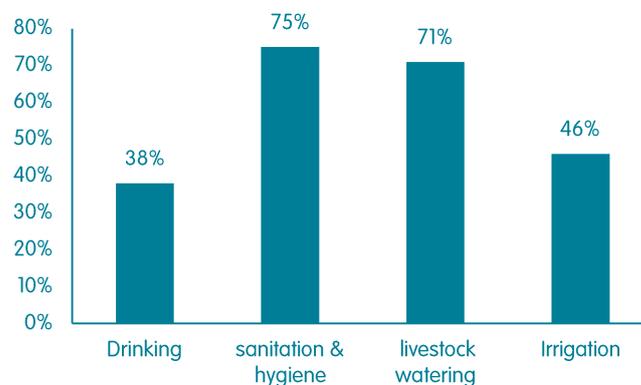


Use

The analysis in this section excludes data from Kalu woreda where all the self-supply facilities are ponds used for irrigation. Family wells are generally used for multiple purposes by households. About 75% of all surveyed facilities are used for sanitation and hygiene (cleaning, washing and bathing), 71% are used for livestock watering, 46% are used for irrigation and 38% of the facilities are used for drinking.

Irrigation is more prominent in some woredas like Dera and less common in others like Omo Nada and Dugda. Most of these households grow cash crops like khat, coffee or fruits and vegetables using water from household wells to bolster their household income. The highest annual cash benefits from such irrigation are obtained in Dugda, Kalu and Dera woredas.

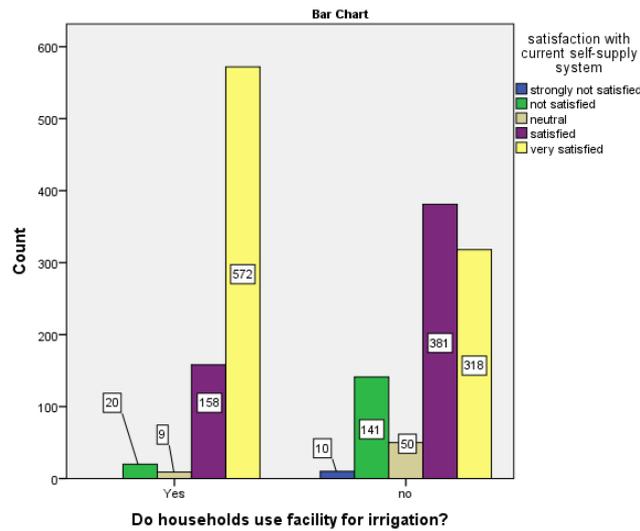
Figure 12: Use of Self-supply facilities (hand dug-wells only)



Out of the sample, 58% of well owners share their Self-supply facilities with other households. Most share with less than five households while about 35% share with up to ten other households. Sharing is more common in Omo Nada, Kelela and Dugda, while it is less practiced in Dera where individual well ownership is very high. The most common uses of shared water are drinking or sanitation and hygiene.

Excluding Kalu woreda where ponds are mainly used, the majority of Self-supply well owners (87%) are satisfied with their facilities. Satisfaction levels are highest in Dera and Kelela woredas. Satisfaction with Self-supply facilities is highest in cases where households are able to use the water for irrigation (a Chi Square test shows strong evidence of a relationship between irrigation use and households satisfaction with their wells, Chi square = 284.25, at 4 df, $p < 0.05$; and a degree of association test with Cramer's V shows a strong relationship with $V = 0.414$)

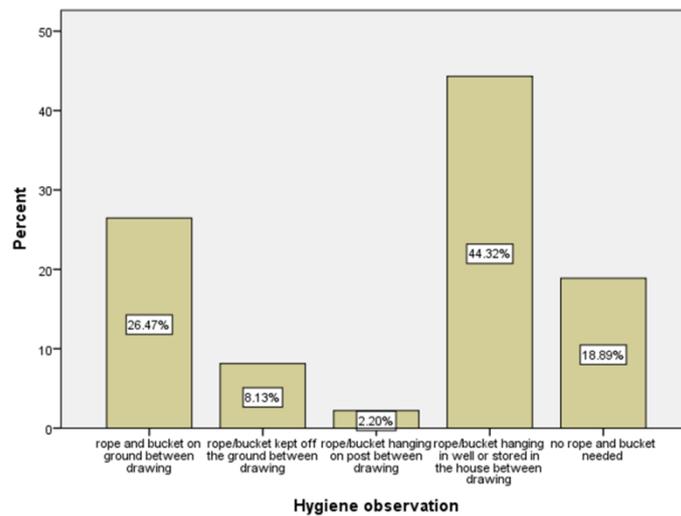
Figure 13: Levels of satisfaction for household-level irrigators and non-irrigators



Safety

The risks of contamination from surface and near surface runoff have already been introduced with most wells unprotected. Wells without proper headworks, or at least a cover, also present an obvious safety risk to users and children. Such risks can be reduced through improvements and use of better lifting devices such as a pulley or rope pump. A further risk of contamination is related to water collection and the handling of the rope and bucket or other lifting device. More than a quarter of households (26%) were observed to keep the rope and bucket on the ground after drawing water from the well.

Figure 14: Observations on storage of rope and bucket

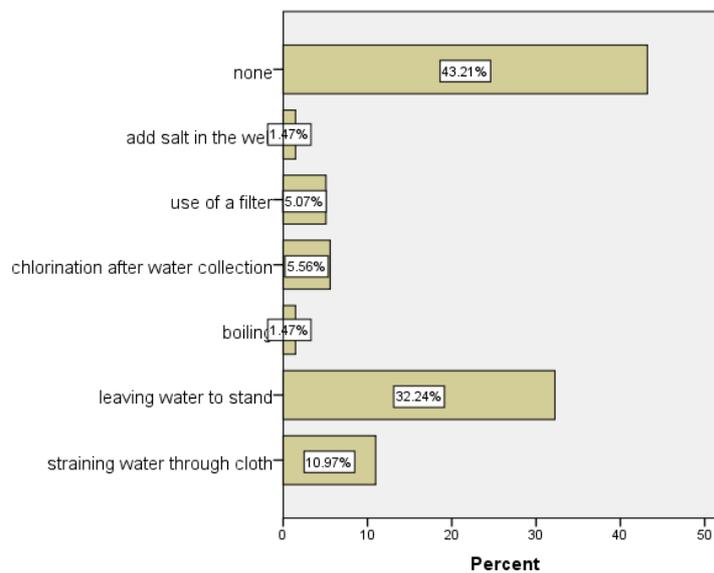


Ownership of latrines is high overall in the study areas, with 84% of households having access to latrines. However, there are differences across woredas and a relatively high proportion of households are without access in Dera and Dugda woredas. Some latrines are sited in areas of concern with 2% being located within 10 metres and upslope of a well, and a further 20% within 10 metres but at a lower elevation. Most of the latrines (74%) owned by households are basic pits without a cleanable slab. Open defecation is practised by households without latrines. There is a risk that in a poor sanitary environment water will be contaminated either through collection at

the source or during handling. Of serious concern, faecal or solid waste was observed within 5 m at 60% of wells.

Household water treatment is practiced by very few households. From households that use their Self-supply facility for drinking water, only 12% use a filter, chemical treatment or boiling before drinking.

Figure 15: Methods of drinking water treatment by households using their Self-supply facility for drinking



Water quality tests (tests for *E. coli* contamination) were conducted on samples from 196 hand dug wells (25 ponds were also tested) using the compartment bag test (CBT). The majority (76%) were found to be contaminated with unsafe levels of *E. coli*, more than 10 MPN/100ml³. This is consistent with other water quality surveys of traditional wells. Sutton et al. (2012) reported 80% of unprotected wells to exceed 10 TTC/ 100 ml (a slightly different indicator) and 69% of semi-protected wells with a drum.

The highest water quality risks are observed in Dera and Dugda woredas followed by Este and Farta. Lower levels of contamination are observed in Kelela, which could be due to the fact that almost all of the 15 wells sampled in Kelela are semi-protected, having been built by NGOs. On the other hand in Dera and Dugda, 99% and 96% of the wells are unprotected.

³ Safe or very low risk <1 MPN/ 100ml, Low risk 1-10, High risk/ Unsafe >10-100, Very high risk/Unsafe >100

Figure 16: *E. coli* levels for hand-dug wells

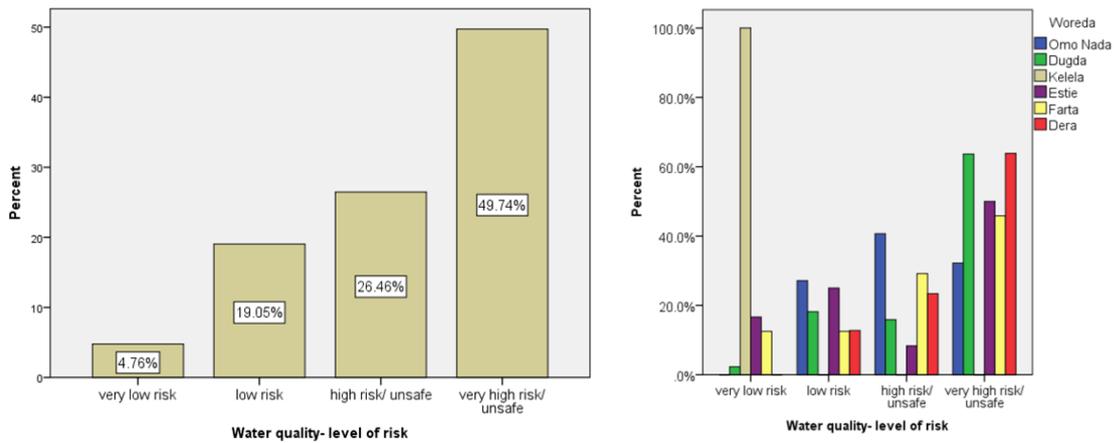
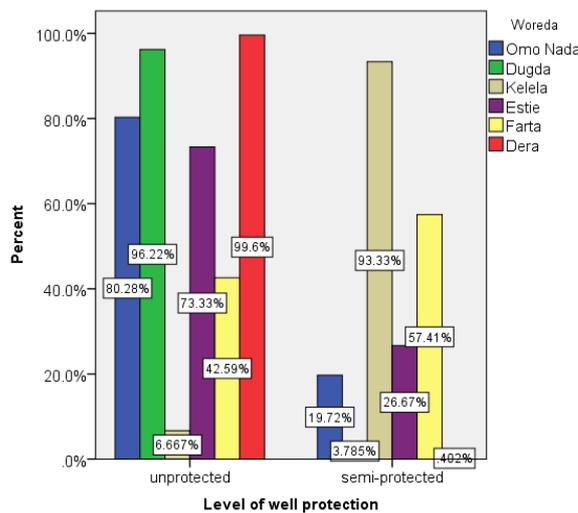


Figure 17: Level of well protection by woreda



Local markets

As discussed in the previous section, there is an existing market for the products and services needed by households to develop their Self-supply facilities. However, use of own labour is preferred and investments are typically in low-cost items. There is clearly much potential to grow the size of the market for services and products from its current level. The survey also examined the presence and status of local enterprises that currently service this market or are engaged in related business sectors.

The number of enterprises identified in the targeted areas was fairly limited. Most are expected to be informal enterprises, but 77% of the 39 businesses surveyed in our sample were registered enterprises. Many (22 out of 39) were providing water supply related products, mainly lifting devices such as rope pumps, treadle pumps and pulleys, as well as well slabs. Very few (only three) were providing household water treatment chemicals and an equally limited number (another three) were providing water storage tanks. A large group (17) provide water supply services such as pump installation, engine pump maintenance, well construction and spring development. The number of businesses identified providing sanitation products was smaller. Only 7 of the businesses surveyed provided sanitation products, mostly latrine slabs, while two provided sanitation services such as construction of latrines and waste collection. In addition to

the surveyed businesses, local artisans are present in all woredas (66 in Este and over 50 in Dera for example), engaged in well digging for households and community schemes.

The non-WaSH related products and services supplied by the business enterprises included woodworking, general metalwork and welding services, production of concrete blocks etc. Those business engaged in metalwork could potentially engage in developing products for Self-supply such as pumps, windlasses and pulleys.

Dugda has the most business enterprises with 14 providing water supply products such as various water lifting devices, household water treatment products, storage tanks and well slabs. It also has four business enterprises providing water supply services such as well construction. Kalu has only three businesses providing pumps and water storage products while a further two provide pump installation services. Farta woreda also has just three business enterprises providing water storage products. Omo Nada has one business providing pumps and seven providing pump installation services. The businesses in Omo Nada are mostly servicing community water supplies. Kelela has no water supply product supplying business enterprises as far as we could identify, while in Dera and Este only a couple of business enterprises provide maintenance services for engine pumps used in irrigation. While private enterprises that can provide services for Self-supply products and services are readily available in some woredas and can easily engage in the business with little support, in others much stronger engagement and capacity building of enterprises is needed or new business encouraged.

All the surveyed businesses are small scale undeveloped business. Very few, 10 out of the 39, have business plans, mostly developed with the support of government micro and small enterprises agency at woreda level. The majority, 30, have not taken business investment loans. Those who have, have mostly taken loans from state backed micro finance institutions. For about 21 of the businesses their market is concentrated in the woreda, while few (11) have customers outside the woreda and 5 claimed to have a wider reach of customers coming from outside their zones from different parts of the region.

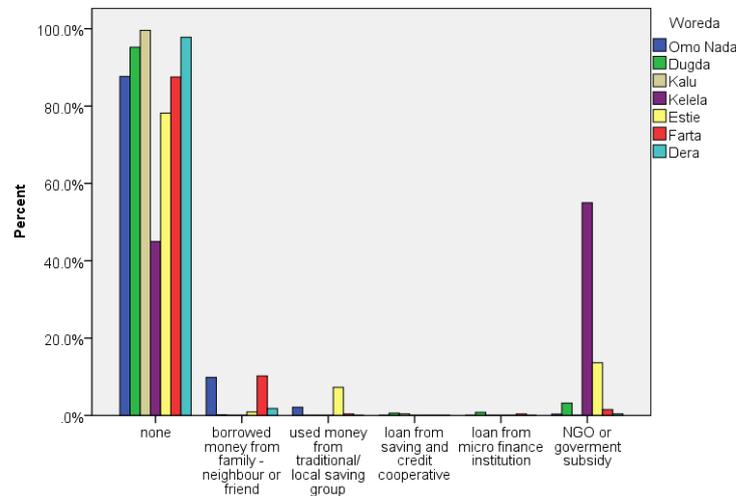
The surveyed business enterprises have contrasting views about the WaSH market. About half, 18, believe the market for WaSH work and products to be small but growing. However, among the reported key challenges faced, low demand for WaSH products and services with few customers ranks the highest (identified by 72% of the respondents). Other key challenges include: lack of investment capital (49% respondents), lack of equipment and tools (33%), lack of suitable premise for business and lack of business development training (both 28%), while cumbersome administrative procedures for licensing, renewal etc. is listed as a challenge by 18% of the respondents. These results indicate that demand creation among households, developing marketing skills of enterprises and facilitating access to loans could be priority actions to help address the challenges faced by the private sector.

Financing

External financing for household Self-supply investments is virtually absent in the seven woredas. The majority of households (93%) have used their own resources for investment in construction and upgrading of facilities. Very few (3%) have received subsidies from government or NGOs working in the woreda, and almost no households (0.4%) report they have received loans from either Micro Finance Institutions (MFIs) or rural saving and credit cooperatives. The share of informal saving and credit groups in financing household Self-supply is equally very low. The results are similar across different wealth groups and female and male headed households. Comparing results across the seven woredas, subsidies appear to be higher in Kelela reaching up

to 55% of households, and in Este (13%). Subsidies may be higher in Dugda, where households partial contribution for rope pumps provided by an NGO was not captured well in the survey.

Figure 18 Sources of finance for construction of facilities



Despite the currently low level of financing to household Self-supply, there are opportunities that can be tapped. In all the woredas, micro-finance institutions are present and providing loans to households. One MFI, Amhara Credit and Saving Institution (ACSI) has opened several offices in four of the woredas: Dera, Farta, Este, Kalu and Kelela. In Dugda there are four privately owned MFIs and one government MFI, while in Omo Nada there are one government and one private MFI. While the other MFIs don't have any previous experience in provision of water loans, ACSI has been providing water loans, mainly for motor pumps and pipes used for irrigation.

The conditions of loan provision by ACSI have slight differences across woredas. The maximum loan size provided for rural households is up to Birr 50,000 depending on the applicant's loan history. The conditions required for loans are usually either group guarantee or guarantee by woreda government and the profitability of the venture. Farmland is sometimes also taken as collateral. Loans are provided on interest rates ranging from 13-18%, with a total loan repayment period within two or three years.

Overall there is interest from the MFIs to engage in loan provision for Self-supply, though some caution is also observed. In Dugda and Omo Nada, the MFIs have not entered into water loan provision because they consider it a risky investment, though they have shown interest in the survey. In Amhara region, ACSI, while it has experience in water loans, is cautious about loan provision for Self-supply that doesn't include productive uses of water.

Group-led Self-supply

Who leads?

The national policy guideline indicates that the group-led Self-supply model is expected to be driven by households. Households should request support by submitting their plan for either new construction or upgrading of an existing facility as a group and develop rules for operation and management including management of funds. In the implementation of the group-led model in the three woredas (Dera, Este and Dugda), the initiative to invest has come from the woreda government or NGOs operating in the woreda some of the time, while in other cases the group

members have made a request. The groups' involvement in managing the finance and construction is not strong in almost all cases.

The system of management, tariff setting and fee collection, as well as size of the group members varies according to the type of technology used. Afridev hand pumps in Dugda, rope pumps in Este and pulleys in Dera are the types of lifting technologies used for MWA-supported group-led facilities. A managing committee is set up for Afridev hand pumps, while one person is assigned to manage rope pumps. For upgraded facilities with pulley, no management arrangement is made. Flat tariffs per household are set for facilities with Afridev hand pumps, while there is no regular fee collection system for facilities where a rope pump is installed or a pulley is used. The size of the group varies from 21 households on average for hand pumps in Dugda to less than 5 households for rope pumps and pulleys.

Costs

Most of the group-led facilities have been constructed in the past two years by NGOs with contributions from group members in the form of labor, local construction materials such as sand and stone, and in some cases money for purchase of construction materials or a deposit for future maintenance (amounting to up to 500 birr per group). NGO contributions included payment for construction materials such as cement, purchase of pumps and payment for skilled labor of local artisans for construction and installation. In the case of Dugda, hand pumps are freely distributed by the woreda water office.

It was not possible to obtain details on the exact amount of money contributed by NGOs to the construction of the facilities. It was also difficult to estimate the financial value of the in-kind contribution made by group members. Therefore, estimations of the total cost of construction, contribution of group members and NGOs/government have relied on figures provided by the implementing partners.

For the dug-wells fitted with a rope pump or pulley, it was estimated that group members cover more than 62 and 53 percent of the total cost of construction, respectively, through in-kind contributions, such as gravel, sand, stone, wood and well digging. For dug-wells fitted with hand pump, the group members' in-kind contribution amounts to only 40 percent of the total cost of construction.

Figure 19 Cost of group Self-supply facilities (in birr) and proportion covered by members and NGOs/government

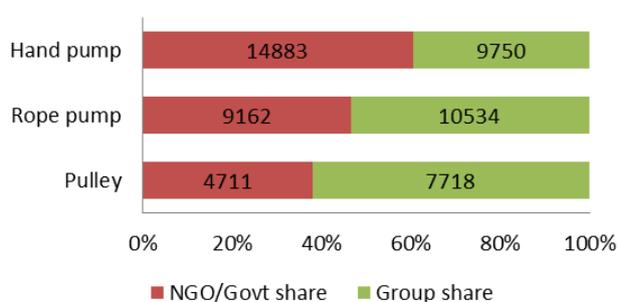
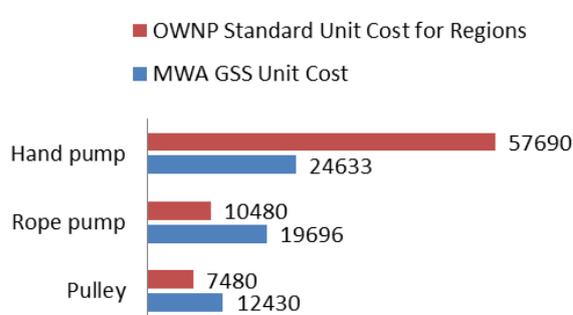


Figure 20 Unit cost of group-led Self-supply facilities constructed by MWA partners and OWP standard costs



Comparison of the unit costs of group-led facilities constructed by MWA partners and the standards⁴ set for regions in the OOWNP, show huge differences. The figures suggest that group-led facilities constructed by MWA partners in South Gonder are much more expensive than national standards, raising questions about cost effectiveness. On the other hand, costs of group-led facilities in Dugda are low, potentially raising questions on standards of the construction. The unit and per capita costs of hand dug wells fitted with rope pumps for groups in the MWA woredas are almost double the OOWNP standard set for Amhara region, while the dug-well with pulleys cost 40 percent more. On the other hand, the unit prices for hand pumps in Dugda are much lower (about half) than the standard set in OOWNP for Oromia region.

Similarly, the average per capita costs for group-led facilities show major differences when compared with the per capita cost standards used for OOWNP planning. The per capita cost of dug-wells with rope pumps is more than double the standard per capita cost in the OOWNP set for Amhara region. The difference in unit cost coupled with the difference in number of beneficiaries, which is lower for group Self-supply facilities constructed by MWA partners, has resulted in higher per capita costs. Although the costs of the hand pump schemes in Dugda are relatively low, the numbers of beneficiaries are also low so it turns out that the actual per capita costs of these schemes is close to the proposed standard.

Figure 21 Per capita costs of Group-led Self-supply facilities constructed by MWA and OOWNP standards

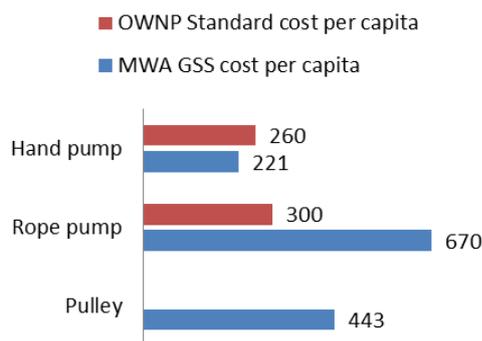
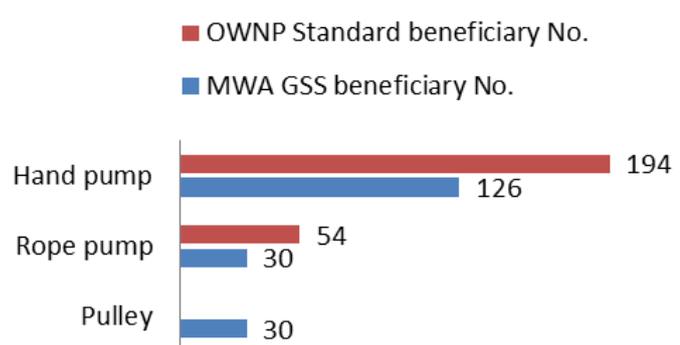


Figure 22 Beneficiary numbers for MWA group-led facilities and OOWNP standards



Service levels and use

All the 25 group-led Self-supply wells surveyed were semi-protected wells with some protection intended to prevent external contamination of the well. About 76 % of the wells have a sealed mouth with impermeable protective wall, and all have an impermeable apron. Most of the wells have a drainage system, an earthen channel or a concrete impermeable channel. Most of the wells are lined with mortar or concrete rings. However, unhygienic handling of the rope and bucket in some cases and contamination of the immediate area around the well with solid and faecal waste were observed. Most of the wells are functional all year round, providing adequate water for group members and those outside of the group sharing the facility. The depth of the majority of the wells is between 10-15 meters. Collapsing is not a problem in most areas.

The main uses of water from the group-led facilities are drinking (100%) and sanitation and hygiene (96%). For more than half of group members, the facility is their main source of drinking water. The water is also used for livestock (64%) and irrigation (24%). Irrigation users are mostly

⁴ The standard was set in 2013 when the OOWNP document was prepared. The figures used for comparison are multiplied by annual 2.5% inflation rate

households on whose land the facility is constructed. Half of the group-led facilities are shared with other households outside the group who mainly use it for drinking and cleaning and sometimes for livestock.

The majority of the households are very satisfied with their group-led facility. In more than half of the cases, there is no limit to the amount of water households can collect. However, 62% on average collect less than 15 litres of water per head per day, while 25% collect more than 15 litres but less than 25 litres per head per day. Only 12% were able to collect 25 or above litres per head per day. Waiting time at the source to collect water is very low, being less than five minutes for 76% of the households. Very few families had to wait for above 10 minutes. Most of the respondents rated the quality of water as good for human consumption and the majority don't have any concerns about the water quality. Water quality tests on 8 of the 25 group facilities showed half to be of low health risk (*E. coli* contamination) and half fell under high or very high risk category. However, this sample size is very small to draw any conclusions. Water quality of the group-led facilities needs further investigation with a larger sample size.

5. Conclusions and recommendations

The key findings and recommendations are grouped as follows:

- summaries by woreda highlight large differences between the areas targeted by the pilot and provide some locally-specific recommendations
- recommendations for the endline survey (in 2017)
- recommendations for woreda-level planning of Self-supply acceleration activities
- recommendations for market and business development
- specific recommendations for group-led Self-supply

Woreda summaries

This section briefly summarizes the status of Self-supply in each of the targeted woredas based upon the baseline survey findings.

Omo Nada, Oromia

Hand-dug wells are common in Omo Nada with many more existing facilities than local officials had expected. Lining with bricks is quite common but lifting devices are simple, mainly rope and bucket and pulleys. Typically, wells are unprotected and microbial water quality is poor. Some unnecessary investments in headwork construction with masonry and mortar were observed, which may indicate an interest to invest and affordability on the one hand, and a lack of technical advice on the other. Almost all families purchased some inputs or services to develop their water supplies, but only from the local informal private sector. Oromia Micro-finance and Harbu Micro-finance have no experience of lending to the WASH sector or providing related business loans. Eight businesses were identified but these serve community schemes such as spring development and hand pump installation.

Photo 5: family wells in Omo Nada, Oromia



Dugda, Oromia

Many wells were constructed recently in Dugda during the period 2012–2015, taking advantage of shallow groundwater and generally diggable and stable volcanic sediments in the areas around Lake Ziway. Although rope and bucket is still the most common lifting device, there are large numbers of rope pumps now in use. Although not surveyed, fluoride contamination is a known problem in this area of the rift valley and presents a major risk for drinking. Well protection generally has much scope for improvement. Five MFIs (one Government and four private) are present but none provide loans for household level irrigation or other water supplies due to high perceived risk and low demand. Being a major town along the main road, business is active and there are some 19 private business enterprises (most of them informal) providing services and / or products related to WASH in Meki.

Kalu, Amhara

There are no shallow groundwater resources in the targeted areas suitable for hand-dug wells (none in the two targeted kebeles), but there are large numbers of family ponds. These rainwater harvesting structures have been developed through a Self-supply type approach led by the agriculture sector. There is an opportunity to further promote household water treatment and storage in the woreda, but the ponds are not used for drinking. There are other kebeles in the woreda that are said to have potential for family well development though these have not yet been targeted for the MWA pilot. ACSI provides loan only for irrigation activities and few relevant businesses were identified.

Photo 6: Typical family ponds in Kalu, Amhara



Kelala, Amhara

There is no tradition of Self-supply in this area, with very few existing Self-supply facilities in the targeted kebeles, mainly hand-dug wells with rope pumps and rainwater harvesting ponds. These facilities themselves are recent, with most constructed in the last couple of years,

sometimes with the support of the agriculture or water offices and sometimes without. ACSI is providing loans for irrigation supplies such as water pumps, pipes and generators. There are no businesses providing products related to Self-supply.

Photo 7: Self-supply in Kelala, a) rope pump, b) family pond



Dera, Amhara

Levels of well ownership are very high in parts of Dera around Lake Tana, with the woreda agriculture office estimating almost 40,000 wells in the woreda, driven by high levels of use for irrigation (95% wells surveyed). Khat and coffee are common crops. Sediments are suited to well digging and manual drilling. A quarter of wells are used for drinking, and a similar number for hygiene and sanitation purposes. There is limited sharing of wells due to the high levels of well ownership, and where sharing happens it is mainly for drinking purposes. The use of pulleys is widespread, but most wells are unprotected and sanitary conditions around the wells are poor. ACSI is extending loans for motor pumps for irrigation, and there are existing businesses such as motor pump repair shops (2) and artisans (more than 50), but these are not providing or working with the kind of products and services that are needed. There are major opportunities to go beyond depending of wells, which is common, to improve water quality where wells are used for drinking by promoting upgrading, safer use and cleanliness of wells, the safe siting of latrines (given high levels of open defecation) and household water treatment.

Farta, Amhara

Farta is part of the volcanic high lands receiving high rainfall, and the shallow groundwater is from the weathered part of the volcanic rocks. Though manual well drilling can be applied in selective areas, generally manual excavation is preferred here. Many facilities in Farta were recently constructed with 1/3 constructed in previous year. Family wells are generally simple with rope and bucket and some use of pulleys as lifting devices. Compared to other woredas, the proportion of semi protected wells is high, accounting for 57% of wells. However, sanitary handling of the rope and bucket and the environment surrounding the wells is low. Water quality is compromised as a result, although 42% families rely on such sources as their main drinking water supply.

Photo 8: Simple well protection, Farta, Amhara; with bucket made of an old car inner tube lying by the well



There is an opportunity to link promotion of new construction to the current family well campaign as part of soil and water conservation activities. Upgrading and promoting safe use should be prioritized to improve water quality. The existence of 135 trained local artisans and several private businesses engaged in supply of construction materials are opportunities that can be harnessed to develop services and supply chain of products to support Self-supply. A microfinance institution, ACSI, is also present and providing loans for irrigation is another opportunity for loans to support Self-supply development.

Este, Amhara

There has been steady growth in the construction of Self-supply wells in Este over the past 10 years and the practice is well established. Artisans engaged in well-digging are present (66 reported) and there is a local enterprise servicing motor pumps but there are still big gaps in supply chains that are plugged by NGOs and government on an ad-hoc basis. Motor pumps are being promoted by the agriculture sector with loans from ACSI. Rope pumps and hand pumps have been promoted for Self-supply by NGOs under both household and group-led models but with high subsidy levels. This may have distorted willingness to invest. Further interventions could be targeted on supporting a market-driven approach, focusing on upgrading the 30% wells used for drinking and targeted loans or subsidies to the poorest households.

Overall conclusions and recommendations

End line survey

- Although it had been originally intended, the survey did not embed the capacity within the woredas to add new facilities to the database of Self-supply facilities that were mapped during the survey, or to update the status of facilities (e.g. where they were upgraded or new water quality tests undertaken). This update will now be done through the end line survey.
- Given delays and the limited time remaining for pilot activities, the end line survey needs to be pushed back as far as possible. The latest possible timing could be May 2017, with analysis and reporting proposed to be completed by August 2017.
- It might be possible to encourage Self-supply facility owners to register their facilities with the woreda if this was related to some sort of incentive such as access to information or advisory support. This could support monitoring in the longer-term if linked to implementation activities by the woredas.
- An adapted survey design with additional data collection will be required in Kalu if the implementation focus shifts to other focus kebeles with better groundwater potential.

Woreda-level planning of Self-supply acceleration activities

- It is recommended to plan activities that encourage upgrading as well as promoting investment in new facilities. Upgrading and promoting improved management of facilities (ensuring cleanliness and safe use of lifting devices etc.) has potential for some quick wins, with strong potential to demonstrate improvements in water quality and reduced risk to households.
- Most wells are used for multiple purposes including productive and domestic uses. The most common uses of water are related to hygiene and sanitation. These benefits should be considered when promoting investment in wells, and strategies developed with the participation of agriculture, health and other sectors.
- Levels of mobile phone ownership are high and phone numbers were collected during the survey so there is potential to contact owners by phone or SMS e.g. to send promotional messages or ask follow-up questions.

- There is an opportunity in Kalu to learn from how the agriculture sector has promoted rainwater harvesting, but there is no potential for shallow groundwater development and the facilitating partner (CRS/ WA) is not engaged in supporting family ponds. Promotion of household water treatment is possible, but this seems a low potential woreda for rapid uptake of Self-supply. Other kebeles within the woreda could be targeted.

Markets, finance and business development

- Private sector development in all the woredas is at an early stage. Supply chains for products and services related to Self-supply are not well developed but they do exist. Interventions should build on what already exists in these woredas. These service providers receive little attention or support from professionals and agencies, so there is a gap in business development services to fill.
- One practical step is to engage business representatives in the planning of Self-supply acceleration interventions.
- Availability of finance is not the most critical constraint to getting on the Self-supply ladder, but more finance could help owners to upgrade and improve their facilities, or construct to a higher standard. Finance might also be used to extend access to poor households, women and women-headed households.
- There is potential - if convinced about the potential viability of the market - for MFIs to support household-led investments through loans, which they currently only do for 'productive' irrigation wells. This requires engagement with MFIs including encouragement, support to loan design and follow-up. There is also potential for MFIs to lend to businesses servicing the Self-supply market.
- Most businesses are informal and have limited capacity. Formal registration could bring advantages but also presents risks for enterprises and individuals. Carefully designed business development strategies are needed that focus on both informal and formal businesses. It is also important to try and create an improved enabling environment for the informal ones (e.g. towards registration and licensing).
- There are numerous factors in the wider business environment that constrain local entrepreneurs, for example: poorly targeted public subsidy programmes that distort market demand; registration and licensing processes that are often arduous, costly and, if not achieved, can inhibit access to credit. These are highly complex political economy issues, which can only be resolved by the government. To this end, collective action is needed at kebele, woreda, regional and country level to bring together the diverse existing initiatives in this area, and drive ambition and achievement at scale.

Group-led Self-supply

- Implementation of the group-led Self-supply approach among MWA partners was found to be diverse. In some cases it is not in line with national standards that require ten or more households to be in a group to qualify for a subsidy. In other cases, the partial subsidy provided by NGO and Government has exceeded the limit set. The type of technology promoted seems to be a critical factor in influencing the number of households in a group or the proportion of households' contribution to the total cost.
- Looking at how services are initiated and implemented, group-led Self-supply has more characteristics of community water supply than what is known elsewhere as Self-supply. The initiative is not strongly bottom-up and there are no financial contributions from group members. To avoid confusion, the name might be changed to something like 'Group-led subsidised schemes'.
- The group-led approach seems to try to replicate some of the features of the 'community managed projects' approach which also seeks to drive down costs (through community contracting) and ensure high levels of community contribution.

- With respect to cost effectiveness, the unit and per capita costs of construction of the group facilities are much higher for hand-dug wells with rope pumps and pulleys compared to national standards set for conventional community water supply. The survey raises questions on the costs of the group-led model, which could be further investigated.
- The study did not examine government implemented group-led Self-supply schemes. It is recommended to complete a study of such schemes using the same survey questions.
- On service levels, the group Self-supply wells are mostly better protected than household Self-supply wells covered by the survey, though water quality needs to be further verified with a larger sample size than achieved in this study. More needs to be done to improve sanitary conditions of the wells and lifting devices.
- Critically, we have not yet identified any strategy in which group-led and household-led approaches, along with community water supply, are implemented together as part of a strategy toward achieving universal coverage. This is an area where MWA also has a comparable advantage and could lead the development of practical approaches.

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Annex 1: Survey questionnaires

Self-supply basic details (v. 11.0)

Question **Response**

New group - please change name
Self-supply facility and owner

1. New question - please change name _____
 2. Type of (private) water supply facility
 Dug-well _____
 Manually drilled well _____
 Spring _____
 Rainwater harvesting pond _____
 Rooftop rainwater harvesting _____
 Household water treatment and storage _____

3. Photo _____
 4. Location _____
 5. Woreda _____

Omo Nada _____
 Dugda _____
 Jeldu _____
 Kalu _____
 Kelela _____
 Estie _____
 Farta _____
 Dera _____

6. Region
 Amhara _____
 Oromia _____

7. Kebele
 Bekele Girissa _____
 Walda Kelina _____
 Walda Makdela _____
 Darara Dalacha _____
 Zara _____
 Korata _____
 Wonchet _____
 Angachat _____
 Deskuwa _____
 Wuchiba _____
 Dat _____
 030 _____
 031 _____
 032 _____
 033 _____
 01 Addis mender _____
 02 Agamsa _____
 03 Adisalem _____
 029 Ardibo _____
 04 Adame _____
 024 Ketetya _____
 03 Worabeti _____
 Kanat _____
 Sahirna _____
 Wukiro _____
 Deremo Askuma _____
 Farta Kuskuwam _____
 Amijaye _____
 Burqa Asendabo _____
 Waqtola _____
 Goro Seden _____
 Biso Gombo _____

8. Who is the owner of the facility? _____
 9. Mobile phone number _____

Household characteristics

10. Gender of respondent
 Male _____
 Female _____
 11. How old are you? _____
 12. How many members in the household? _____
 13. Who is the head of this household?
 Myself _____

- Husband or Father _____
 Wife or Mother _____
 Another man _____
 Another woman _____
14. What is the marital status of the head of this household?
 Married _____
 Single _____
 Widowed _____
 Divorced/ separated _____
 Other _____
 Don't know _____
15. What is the level of education of the most senior male member of this household?
 No formal education _____
 Some primary education _____
 Completed primary (completed grade 8) _____
 Completed secondary (completed grade 12) _____
 Tertiary _____
16. What is the level of education of the most senior female member of this household?
 No formal education _____
 Some primary _____
 Completed primary (completed Grade 8) _____
 Completed secondary (completed Grade 12) _____
 Tertiary _____
17. Wealth status of household
 Poorest third _____
 Middle third _____
 Richest third _____
- Construction and acquisition of facility**
18. Year of construction or purchase (Ethiopian) _____
19. How was the facility constructed?
 constructed using own (family) labour _____
 constructed using labour of neighbours and friends without payment/ barter _____
 constructed using labour of neighbours, friends or local unskilled labour with payment/ barter _____
 constructed using hired labour of specialist local artisans (e.g. well diggers- masons) _____
20. Were any services or products purchased (with money) to construct or acquire the facility?
 Yes _____
 No _____
21. If yes, what products or services did you _____
Only answer if you responded Yes to Q20
22. If yes, where were these services or _____
 a business located within the same kebele _____
 a business located within the same woreda _____
 a business located outside the woreda _____
Only answer if you responded Yes to Q20
23. If yes, what kind of person or enterprise
 local individual/ group of individuals (informal) _____
 shop _____
 factory or workshop _____
 micro-enterprise (e.g. water works enterprise) _____
 other formal business _____
24. Did you have any kind of financial support to make the investment?
 None _____
 Borrowed money from family- neighbour or friend _____
 Used money from traditional/local saving group _____
 Loan from saving and credit cooperative _____
 Loan from micro-finance institution _____

Self-supply repeat survey (v. 19.0)

Question	Response
Modified sanitary inspection for traditional wells	
1. Well mouth covering	None _____ Loose fitting sheet- planks- wood- plastic- metal etc (with gaps, cracks or holes that will allow debris to enter the well) _____ Well fitted lid (that will not allow anything to fall into the well) _____ Lockable cover in impermeable top slab _____ Sealed unit (pump) _____
2. Well mouth protective wall	None _____ Permeable wall (e.g. wood- rotten drum) _____ Concrete top slab- no wall _____ Impermeable <30 cm high _____ Impermeable >30 cm high _____
3. Level of well mouth/ wall base	Below ground-level _____ Level with surrounding ground _____ Raised above ground (mound) _____
4. Apron	None _____ Compacted soil _____ Wood/cracked concrete or stone _____ Impermeable <0.5 m _____ Impermeable >0.5m _____
5. Drainage channel	None _____ Apron/ top slab with no lip to divert water _____ Earth channel diverts waste water away _____ Apron with concrete lip _____ Apron- lip + impermeable channel > 3m _____
6. Soakaway	None _____ Waste water to plants within 3m _____ Wastewater to plants > 3m _____ Blocked soakaway _____ Operating soakaway _____
7. Lining length	None _____ Top <1 metre below ground level _____ Top > 1 meter below ground level _____ At top and bottom of well _____ Full lining impermeable _____
8. Lining material	None _____ Wood/ clay/ dung _____ Wood (close) or dry stone _____ Bricks _____ Masonry with mortar _____ Concrete rings _____
9. Seal - lining and parapet	None- water can flow in _____ Water cannot flow in- but infiltrates below ground level _____ No surface water infiltration possible _____
10. Lifting device	Rope and bucket/ tyre tube _____ Rope and bucket with pulley _____ Windlass _____ Rope pump _____ Hand pump (e.g. Afridev- India Mark II) _____ Diesel or Electric pump _____
11. Is the lifting device working?	Not functioning _____ Functioning badly _____ Functioning well _____
12. Hygiene (observation)	Rope and bucket on ground between drawing _____ Rope/bucket kept off the ground between drawing _____ Rope/bucket hanging on post between drawing _____ Rope/bucket hanging in well between drawing _____ Rope/bucket stored in house between drawing _____ No rope and bucket needed _____
13. Latrine proximity	Latrine within 10 m- uphill of well (or no noticeable slope) _____ Latrine within 10 m- but downhill _____ Latrine within 30 m _____ None within 30 m _____

14. Solid/ faecal waste
Within 5 m of well _____
Within 10 m of well _____
Within 10-30 m of well _____
None within 30 m _____

15. During the rainy season do you get standing water around the well?
Within 5 m of well _____
Within 10 m of well _____
Within 10-30 m of well _____
None within 30 m _____

Well characteristics

16. What is the depth of the well (in metres) _____
17. Tendency for collapse

Used to collapse before we made improvements _____
Collapses frequently below surface _____
Collapses common near surface _____
Needs annual cleaning below water _____
Never collapsed _____

18. Well reliability (last 12 months)
Not functioning > 90 days _____
Not functioning 30-90 days _____
Not functioning 10-30 days _____
Not functioning < 10 days _____
Functioned all year round _____

19. Adequacy
Enough for our family and our neighbours all year round _____
Enough for our family all year round but sometimes not enough for neighbours _____
Only enough year round for domestic use (not enough for irrigation or livestock in dry season) _____
Not enough year round for even domestic use _____

Improvements and maintenance

20. Did you ever undertake any maintenance or cleaning of your water supply facility (if this is a repeat survey, was there any maintenance or cleaning since the previous survey)?
None _____
Cleaning around well or spring at surface _____
Cleaning inside well _____
Chlorination of well _____
Maintenance of lifting device or pump _____

21. Did you make any improvements to your water supply facility since the previous survey (if no previous survey in the past 12 months)?
Yes _____
No _____

Only answer if you responded Yes to Q21

22. What improvements did you make?
Well deepening _____
Improvements to well headworks _____
Improvements to lifting device or pump _____
Protection of spring _____

Only answer if you responded Yes to Q21

23. How did you make these improvements?
using own (family) labour _____
using labour of neighbours and friends without payment/ barter _____
using labour of neighbours and friends with payment/barter _____
using hired labour of specialist local artisans (e.g. well diggers- masons) _____

Use and users

24. For what purpose(s) do your household use this private source?
Drinking _____
Cooking _____
Cleaning _____
Bathing _____
Washing clothes _____
Cattle, donkeys and others large livestock _____
Small livestock _____
Irrigation _____

Only answer if you responded Irrigation to Q24

25. If irrigation, type of crops
vegetables _____
fruits _____
khat _____
coffee _____

Only answer if you responded Irrigation to Q24

26. If irrigation, estimate of annual income from _____

27. What is your main source of water for drinking?
Communal: Borehole (motorised pump) _____
Communal: Borehole with handpump _____
Communal: Hand dug well with handpump _____
Communal: Protected spring _____
Communal: Unprotected spring _____
Surface water (river, stream, pond) _____
Private: own self-supply _____

28. Do you share this private source with other households? Private: neighbours self-supply _____
Yes _____
No _____

Only answer if you responded Yes to Q28

29. With how many other households do you _____

Only answer if you responded Yes to Q28

30. For what purposes do your neighbours
Drinking _____
Cooking _____
Cleaning _____
Bathing _____
Washing clothes _____
Cattle and other large livestock _____
Small livestock _____
Irrigation _____

User satisfaction

31. How satisfied are you with your Self-supply facility?
Strongly not satisfied _____
Not satisfied _____
Neutral _____
Satisfied _____
Very satisfied _____

32. What could you do to make improvements? _____

Sanitation

33. Does this household have its own latrine or toilet?
Yes _____
No _____

Only answer if you responded Yes to Q33

34. If yes, type of toilet
ventilated improved pit latrine (VIP) _____
pit latrine with concrete (or other cleanable) slab _____
pit latrine without cleanable slab _____
composting toilet _____
other improved sanitation facility _____
other unimproved sanitation facility _____

Only answer if you responded No to Q33

35. If no, what do you do?
go to bush, open defecation _____
use neighbours latrine or toilet _____

Household water treatment and storage

36. Do you regularly treat your drinking water?
Straining water through a cloth _____
Leaving water to stand _____
Boiling _____
Chlorination after water collection _____
Use of a filter _____

Water quality

37. Water quality sample taken?
Yes _____
No _____

Only answer if you responded Yes to Q37

38. Date water sample taken _____

Only answer if you responded Yes to Q37

39. From where was the water sample taken?
Source _____
Stored water in household (taken earlier from the source) _____
Stored water in household (after household treatment) _____

Only answer if you responded Yes to Q37

40. Label on water sample bag _____

Self-supply water quality results (v. 3.0)

Question

Response

Water quality test results

1. Label on water quality sample bag
2. Date of test result
3. MPN/100ml
4. Health risk category

- Low Risk/ Safe_____
- Intermediate risk/ probably safe_____
- Intermediate risk/ possibly safe_____
- Intermediate risk/ possible unsafe_____
- High risk/ unsafe_____
- Very high risk/ unsafe_____

Self-supply group basic details (v. 9.0)

Question	Self-supply facility and owner	Response
-----------------	---------------------------------------	-----------------

1. Type of (group) water supply facility	Dug-well _____ Manually drilled well _____ Spring _____ Rainwater harvesting pond _____ Rooftop rainwater harvesting _____	
--	--	--

2. Type of technology used to lift water	Motorized engine pump? _____ Afrideve hand pump _____ Treadle pump _____ Rope pump _____	
--	---	--

3. Photo	_____	
----------	-------	--

4. Location	_____	
-------------	-------	--

5. Woreda	Omo Nada _____ Dugda _____ Jeldu _____ Kalu _____ Kelela _____ Estie _____ Farta _____ Dera _____	
-----------	--	--

6. Region	Amhara _____ Oromia _____	
-----------	------------------------------	--

7. Kebele	Bekele Girissa _____ Walda Kelina _____ Walda Makdela _____ Darara Dalacha _____ Zara _____ Korata _____ Wonchet _____ Angachat _____ Deskuwa _____ Wuchiba _____ Dat _____ 030 _____ 031 _____ 032 _____ 033 _____ 01 Addis mender _____ 02 Agamsa _____ 03 Adisalem _____ 029 Ardibo _____ 04 Adame _____ 024 Ketetya _____ 03 Worabeti _____ Kanat _____ Sahirna _____ Wukiro _____ Deremo Askuma _____ Farta Kuskuwam _____ Amijaye _____ Burqa Asendabo _____ Waqtola _____ Goro Seden _____ Bisu Gombo _____ Kedida _____	
-----------	---	--

8. Who is responsible for the facility (contact)?	_____	
---	-------	--

9. Mobile phone number	_____	
------------------------	-------	--

Group characteristics

10. How is the scheme initiated and the group formed?	upon request of the community for a group self supply _____ Initiated by the NGO working in the woreda _____ initiated by woreda/ kebele government _____	
---	---	--

11. How is the group managed?

As a WASHCO (water committee) _____

12. Is there a care taker?

yes, there is a paid care taker _____

there is a voluntary care taker _____

No, there is no one assigned _____

13. Is user fee collected for O&M?

Yes, using pay per use system _____

Yes, flat rates are set per household _____

no regular tariff, but use communal one time fund raising system _____

Only answer if you responded Yes, using pay per use system to Q13

14. How much is the tariff in ETB per liter? _____

Only answer if you responded Yes, flat rates are set per household to Q13

15. How much is the tariff in ETB per _____

16. How many members (households) in the _____

17. What is the name of the group or facility? _____

Construction and acquisition of facility

18. Year of construction (Ethiopian calendar) _____

19. Who constructed the facility?

full construction by NGO/local government _____

construction by NGO/local government with contribution of households in the group _____

fully by the group members themselves _____

ou responded construction by NGO/local government with contribution of households in t

20. What was the contribution of the group _____

21. How was the facility constructed?

constructed using own (group) labour _____

constructed using labour of neighbours, friends or local unskilled labour with payment/ barter_

constructed using hired labour of specialist local artisans (e.g. well diggers- masons) _____

ou responded construction by NGO/local government with contribution of households in t

22. What was the contribution of NGO/local _____

23. Were any services or products purchased

by the group (with money) to construct or

acquire the facility?

Yes _____

No _____

Only answer if you responded Yes to Q23

24. What products or services did the group _____

Only answer if you responded Yes to Q23

25. What is the total sum of money contributed _____

26. Were any services or products purchased

by NGO/ local government (with money) to

construct or acquire the facility?

Yes _____

No _____

Only answer if you responded Yes to Q26

27. What services and products were paid for _____

Only answer if you responded Yes to Q26

28. What is the total sum of money contributed _____

Only answer if you responded Yes to Q23

29. Where were these services or products

a business located within the same kebele _____

a business located outside the Kebele but within the same Woreda _____

a business located outside the woreda _____

Only answer if you responded Yes to Q23

30. If yes, what kind of person or enterprise

local individual/ group of individuals (informal) _____

shop _____

factory or workshop _____

micro-enterprise (e.g. water works enterprise) _____

other formal business _____

31. Did you have any kind of other financial support to make the investment?

None _____

Borrowed money from family- neighbour or friend _____

Used money from traditional/local saving group _____

Loan from saving and credit cooperative _____

Loan from micro-finance institution _____

Self-supply repeat survey (v. 6.0)

Question Response
Modified sanitary inspection for traditional wells

1. Well mouth covering
 - None _____
 - Loose fitting sheet- planks- wood- plastic- metal etc (with gaps, cracks or holes that will allow debris to enter the well) _____
 - Well fitted lid (that will not allow anything to fall into the well) _____
 - Lockable cover in impermeable top slab _____
 - Sealed unit (pump) _____
2. Well mouth protective wall
 - None _____
 - Permeable wall (e.g. wood- rotten drum) _____
 - Concrete top slab- no wall _____
 - Impermeable <30 cm high _____
 - Impermeable >30 cm high _____
3. Level of well mouth/ wall base
 - Below ground-level _____
 - Level with surrounding ground _____
 - Raised above ground (mound) _____
4. Apron
 - None _____
 - Compacted soil _____
 - Wood/cracked concrete or stone _____
 - Impermeable <0.5 m _____
 - Impermeable >0.5m _____
5. Drainage channel
 - None _____
 - Apron/ top slab with no lip to divert water _____
 - Earth channel diverts waste water away _____
 - Apron with concrete lip _____
 - Apron- lip + impermeable channel > 3m _____
6. Soakaway
 - None _____
 - Waste water to plants within 3m _____
 - Wastewater to plants > 3m _____
 - Blocked soakaway _____
 - Operating soakaway _____
7. Lining length
 - None _____
 - Top <1 metre below ground level _____
 - Top > 1 meter below ground level _____
 - At top and bottom of well _____
 - Full lining impermeable _____
8. Lining material
 - None _____
 - Wood/ clay/ dung _____
 - Wood (close) or dry stone _____
 - Bricks _____
 - Masonry with mortar _____
 - Concrete rings _____
9. Seal - lining and parapet
 - None- water can flow in _____
 - Water cannot flow in- but infiltrates below ground level _____
 - No surface water infiltration possible _____
10. Lifting device
 - Rope and bucket/ tyre tube _____
 - Rope and bucket with pulley _____
 - Windlass _____
 - Rope pump _____
 - Hand pump (e.g. Afridev- India Mark II) _____
 - Diesel or Electric pump _____
11. Is the lifting device working?
 - Not functioning _____
 - Functioning badly _____
 - Functioning well _____
12. Hygiene (observation)
 - Rope and bucket on ground between drawing _____
 - Rope/bucket kept off the ground between drawing _____
 - Rope/bucket hanging on post between drawing _____
 - Rope/bucket hanging in well between drawing _____
 - Rope/bucket stored in house between drawing _____
 - No rope and bucket needed _____
13. Latrine proximity
 - Latrine within 10 m- uphill of well (or no noticeable slope) _____
 - Latrine within 10 m- but downhill _____
 - Latrine within 30 m _____
 - None within 30 m _____

14. Solid/ faecal waste
Within 5 m of well _____
Within 10 m of well _____
Within 10-30 m of well _____
None within 30 m _____

15. During the rainy season do you get standing water around the well?
Within 5 m of well _____
Within 10 m of well _____
Within 10-30 m of well _____
None within 30 m _____

Well characteristics

16. What is the depth of the well (in _____)
17. Tendency for collapse _____

Used to collapse before we made improvements _____
Collapses frequently below surface _____
Collapses common near surface _____
Needs annual cleaning below water _____
Never collapsed _____

18. Well reliability (last 12 months)
Not functioning > 90 days _____
Not functioning 30-90 days _____
Not functioning 10-30 days _____
Not functioning < 10 days _____
Functioned all year round _____

Not functioning > 90 days/Not functioning 30-90 days/Not functioning 10-30 days/No

19. If scheme is poorly functioning, _____
20. Adequacy _____

Enough for the group and others sharing the scheme all year round _____
Enough for the group all year round but sometimes not enough for others outside of the group sharing the scheme _____
Only enough year round for domestic use (not enough for irrigation or livestock in dry season) _____
Not enough year round for even domestic use _____

Improvements and maintenance

21. Did you ever undertake any maintenance or cleaning of your water supply facility (if this is a repeat survey, was there any maintenance or cleaning since the previous survey)?
None _____
Cleaning around well or spring at surface _____
Cleaning inside well _____
Chlorination of well _____
Maintenance of lifting device or pump _____

22. Did you make any improvements to your water supply facility since the previous survey (if no previous survey)
Yes _____
No _____

Only answer if you responded Yes to Q22

23. What improvements did you
Well deepening _____
Improvements to well headworks _____
Improvements to lifting device or pump _____
Protection of spring _____

Only answer if you responded Yes to Q22

24. How did you make these
using own group labor labour _____
using unskilled local labor with payment/barter _____
using hired labour of specialist local artisans (e.g. well diggers- masons) _____

Only answer if you responded Yes to Q22

25. Who paid for the improvements, if
Group members on their own _____
group members supported by NGO/local government _____
full improvement cost is born by NGO/local government _____

Use and users

26. For what purpose(s) do your group members use this private source?
Drinking _____
Cooking _____
Cleaning _____
Bathing _____
Washing clothes _____
Cattle, donkeys and others large livestock _____
Small livestock _____
Irrigation _____

Only answer if you responded Irrigation to Q26

27. If irrigation, type of crops
vegetables _____
fruits _____
khat _____
coffee _____

Only answer if you responded Irrigation to Q26

28. If irrigation, estimate of annual _____
29. What is your main source of water for drinking for group
Own group self supply facility _____

members?

Communal: Borehole (motorised pump) _____
Communal: Borehole with handpump _____
Communal: Hand dug well with handpump _____
Communal: Protected spring _____
Communal: Unprotected spring _____
Surface water (river, stream, pond) _____
Private: own self-supply _____
Private: neighbours self-supply _____

30. Do you share this group source with others (i.e. beyond the group members)?

Yes _____
No _____

31. How many households in total

32. For what purposes do others (non-group members) collect water from the group source?

Drinking _____
Cooking _____
Cleaning _____
Bathing _____
Washing clothes _____
Cattle and other large livestock _____
Small livestock _____
Irrigation _____

User satisfaction

33. How satisfied are you with your Self-supply facility?

Strongly not satisfied _____
Not satisfied _____
Neutral _____
Satisfied _____
Very satisfied _____

34. What is the average amount of

35. Is there a limit to how much water individual households can use?

Yes _____
No _____

Only answer if you responded Yes to Q35

36. What is the limit per household

37. How long on average do user wait

38. How do you rate the quality of water for human consumption?

Good _____
fair _____
poor _____

39. If there are concerns with water quality what does it relate to?

bad smell _____
taste _____
looks _____

40. Has water quality test been conducted by NGO or local government?

Yes _____
No _____

Only answer if you responded Yes to Q40

41. When was the last water quality

42. What could you do to make

Water quality

43. Water quality sample taken?

Yes _____
No _____

Only answer if you responded Yes to Q43

44. Date water sample taken

Only answer if you responded Yes to Q43

45. From where was the water

Source _____
Stored water in household (taken earlier from the source) _____
Stored water in household (after household treatment) _____

Only answer if you responded Yes to Q43

46. Label on water sample bag

Sanitation

47. Does this household have its own latrine or toilet?

Yes _____
No _____

48. If yes, type of toilet

ventilated improved pit latrine (VIP) _____
pit latrine with concrete (or other cleanable) slab _____
pit latrine without cleanable slab _____
composting toilet _____
other improved sanitation facility _____
other unimproved sanitation facility _____

Only answer if you responded No to Q47

49. If no, what do you do?

go to bush, open defecation _____
use neighbours latrine or toilet _____

Household water treatment and storage

50. Do you regularly treat your drinking water?

Straining water through a cloth _____

Leaving water to stand _____

Boiling _____

Chlorination after water collection _____

Use of a filter _____

Self-supply water quality results (v. 1.0)

Question

Response

Water quality test results

1. Label on water quality sample bag
2. Date of test result
3. MPN/100ml
4. Health risk category

- Low Risk/ Safe_____
- Intermediate risk/ probably safe_____
- Intermediate risk/ possibly safe_____
- Intermediate risk/ possible unsafe_____
- High risk/ unsafe_____
- Very high risk/ unsafe_____

Enterprise basic details (v. 3.0)

Question

Response

Enterprise basic details

- 1. Name of business _____
- 2. Name of owner _____
- 3. Address _____
- 4. Name of person interviewed _____
- 5. Mobile phone number _____
- 6. Email _____
- 7. Position of person interviewed _____
- 8. Is the business registered? _____

Yes _____

No _____

Only answer if you responded Yes to Q8

- 9. Business registration certificate number _____
- 10. Location of premises _____
- 11. Photo - person interviewed _____
- 12. Photo - premises _____
- 13. Photo - signboard _____

Enterprise business activities (v. 5.0)

Question **Response**

Products and services

1. Which water-supply related products does the _____
2. Which sanitation related products does the _____
3. Which hygiene related products does the _____
4. Which other (none water, sanitation or hygiene) _____
5. Which water-supply related services does the _____
6. Which sanitation related services does the _____
7. Which hygiene related services does the _____
8. Which other (none water, sanitation or hygiene) _____
9. Who buys the products or services?

Government _____
NGOs _____
other businesses _____
individuals _____

Product and service photos

10. Photo 1 (product or service) _____
11. Photo 2 (product or service) _____
12. Photo 3 (product or service) _____

Planning and finance

13. Has a business plan ever been produced?
Yes _____
No _____

Only answer if you responded Yes to Q13

14. Did you receive assistance to produce this
Yes _____
No _____

Only answer if you responded Yes to Q14

15. Who provided assistance to produce the _____
16. Have you ever taken a loan to invest in the business?
Yes _____
No _____

Only answer if you responded Yes to Q16

17. Who provided the loan?
Private individual _____
State-backed micro-finance institute _____
Private micro-finance institute _____
Bank _____
NGO _____

18. Where do you have an account to save money/ make payments?
commercial bank _____
government MFI _____
private MFI _____

19. Have you ever received business development services?
Yes _____
No _____

20. Who provided these business development services?
woreda-level government including SMEs office _____
zonal-level government _____
regional-level government _____
NGO _____
MFI or bank _____
private company _____

Size and sentiment

21. Estimated annual revenue (in Birr) in past _____
22. What markets does the business reach?

Customers mainly within the same kebele _____
Customers in multiple kebeles- but mainly within the same woreda _____

Customers in multiple woredas within the same zone _____
Customers at regional scale (reaching 2 or more zones) _____
Customers at national scale (reaching 2 or more regions) _____

23. What is your opinion on the size of the market for your WASH (products and services)

small and stagnant or declining _____
small but growing _____
large but stagnant or declining _____
large and growing _____
we dont sell any WASH-specific products and services _____

24. What are the top 3 most critical constraints to your WASH business?

low demand for products and services (few customers) _____
lack of business finance (investment capital) _____
lack of business development services (including training) _____
lack of suitable premises (land, space) _____
lack of equipment _____
administrative e.g. licenses, permissions, approvals etc _____

25. Use this space for any other remarks to

Financial institution basic details (v. 5.0)

Question

Response

Basic details

1. Name of institution

2. Type of institution

Micro-finance institution (government) _____

Micro-finance institution (private) _____

Savings and Credit Cooperative _____

Self-help group _____

Traditional saving scheme _____

Bank _____

3. Name of respondent

4. Position

5. Mobile phone number

6. Email address

7. Region

Amhara _____

Oromia _____

8. Woreda

Omo Nada _____

Dugda _____

Jeldu _____

Kalu _____

Kelela _____

Estie _____

Farta _____

Dera _____

9. Institutional address

10. GPS location

11. Photo of premises

12. Other comments

Self-supply key informant interview (v. 3.0)

Question **Response**

Informant details

1. Name of organisation _____
2. Name of respondent _____
3. Position (within organisation i.e. job title or _____
4. Mobile telephone number _____
5. Date of survey _____
6. Location of survey _____

Self-supply extent and potential

7. Are you able to estimate the number of family or traditional (household-owned) wells within your area? Yes _____
No _____

Only answer if you responded Yes to Q7

8. The area your estimate refers to is a
region _____
zone _____
woreda _____
kebele _____

Only answer if you responded Yes to Q7

9. The name of this area is _____

Only answer if you responded Yes to Q7

10. How many family or traditional (household- _____

Businesses providing Self-supply related products and services

11. Do you know of businesses within your area that provide products and services relevant to Self-supply (these could include well diggers, Yes _____
No _____

Only answer if you responded Yes to Q11

12. The area your estimate refers to is a
region _____
zone _____
woreda _____
kebele _____

13. The name of this area is _____

Only answer if you responded Yes to Q11

14. How many businesses do you estimate in
0 _____
1-4 _____
5-9 _____
10-20 _____
20-50 _____
>50 _____

15. List the types of business and names/ _____

Finance for Self-supply investments

16. Do you know of institutions within your area that provide finance for household level investments in water (Self-supply)? Yes _____
No _____

Only answer if you responded Yes to Q16

17. The area your estimate refers to is a
region _____
zone _____

woreda _____

kebele _____

Only answer if you responded Yes to Q16

18. The name of this area is _____

Only answer if you responded Yes to Q16

19. How many institutions do you estimate in this _____

Only answer if you responded Yes to Q16

20. List the types of financial institutions and _____

Lending policies and portfolio (v. 4.0)

Question **Response**

Lending policies and portfolio

1. Do you provide finance for irrigation, water supply, sanitation or hygiene investments by households? Yes _____
No _____

Only answer if you responded No to Q1

2. If no, why don't you provide finance for _____
We've never considered it before _____
Low demand from households _____
Such investments are not on our list _____
Lack of collateral to secure loans _____

Only answer if you responded Yes to Q1

3. If yes, what are the conditions attached? _____
No conditions, all household water, sanitation or hygiene related investments eligible _____
Only water supply investments eligible (not sanitation or hygiene) _____
Investments must be related to productive uses of water i.e. livestock or irrigation _____

Only answer if you responded Yes to Q1

4. If yes, which financial products do you offer _____

Only answer if you responded Yes to Q1

5. If more than one more product for household _____

Only answer if you responded Yes to Q1

6. What is the maximum loan size for _____

Only answer if you responded Yes to Q1

7. What forms of collateral do you accept to _____
Group collateral _____
Salary _____
House _____
Farmland _____

Only answer if you responded Yes to Q1

8. If relevant, what is the typical interest rate _____

Only answer if you responded Yes to Q1

9. If relevant, what is the typical repayment _____

Only answer if you responded Yes to Q1

10. How many existing clients (irrigation, water, _____

11. Do you provide finance for enterprises engaged in business relating to irrigation, water, sanitation or hygiene? Yes _____
No _____

Only answer if you responded Yes to Q11

12. How many existing business clients (active _____

13. Would you be interested in lending more to such clients if we help to put these businesses in touch with you? Definitely yes _____
Maybe _____
No _____

Wealth categories (v. 2.0)

Question

Response

Definition of wealth ranking categories

1. Woreda / dssgaaD

Omo Nada / DDssasdSA_____

Dudga / ds_____

Jeldu / asdd_____

Kalu / dddd_____

Kelela_____

Estie_____

Farta / kkkfk_____

Dera / lllld_____

2. Definition of poorest category / hhdhdh

3. Definition of middle category / jjjdj

4. Definition of richest category / kkskks

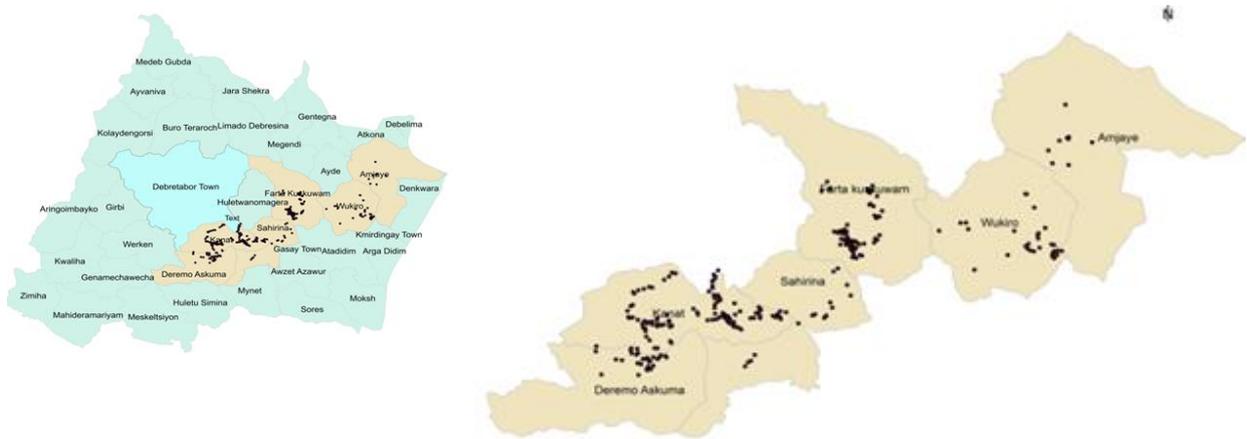
Annex 2: Definition of wealth groups for pilot woredas

Woreda	Definition
Omo Nada	<p>Poor: Poor quality and absence of independent house for cooking, living and livestock; Frequent dropout of their children from school because of failure of the family to meet children's basic needs; Unable to cover annual food demand of the family and engaged in temporary employment; Possession of no or small farm land; No opening to accept agricultural packages; No saving culture.</p> <p>Middle: Have independent houses for living, cooking and livestock; Educate all school age children; Slow adopters of agricultural packages; Cover annual food demands of the family; Have farm land and oxen for ploughing; Modest saving from sale of agricultural products.</p> <p>Rich: Quality houses roofed by corrugated iron that have independent areas for living, cooking and livestock; Educate all school age children; Have own irrigable and or farm lands, and oxen to cultivate land; Early adopters of agricultural packages and willingness to share with others; Possession of perennial crops such as coffee & 'khat'; Cover annual food demands of the family and have extra to sell for lean period; Savings from sale of agricultural products.</p>
Kelela	<p>Poor: Only 3-6 months food secured per year; Do not have additional or diversified income sources; Not able to send their children to school; Not able to purchase agricultural inputs; Lack of household assets (livestock etc.); Productive Safety Net Program (PSNP) beneficiaries; Less than 3,000 Birr annual income per capita.</p> <p>Middle: Able to feed their family for greater than 9 months; Access to few additional income sources; Partially able to purchase agricultural inputs; Few children sent to school; Access to some household assets (livestock etc.); 3,000 to 9,000 Birr annual income per capita.</p> <p>Rich: Food secured all year round, Able to send their children with necessary supplies; Additional or diversified income (small shop in town or kebele, residence house in town for renting or family use, irrigation land etc.); Able to purchase full agricultural inputs by themselves, Annual income more than 9,000 Birr per capita.</p>
Estie	<p>Poor: Landless.</p> <p>Middle: Own land up to one hectare; some cattle; two oxen.</p> <p>Rich: Own more than one hectare of land, four oxen; own livestock like mule, cows; house with corrugated iron roof.</p>
Dera	<p>Poor: No oxen; landless or renting land or less than 0.25 hectare.</p> <p>Middle: Renting land from others; one or two oxen; less than 1 hectare land.</p> <p>Rich: one to four hectares land; livestock; irrigation well or river access.</p>

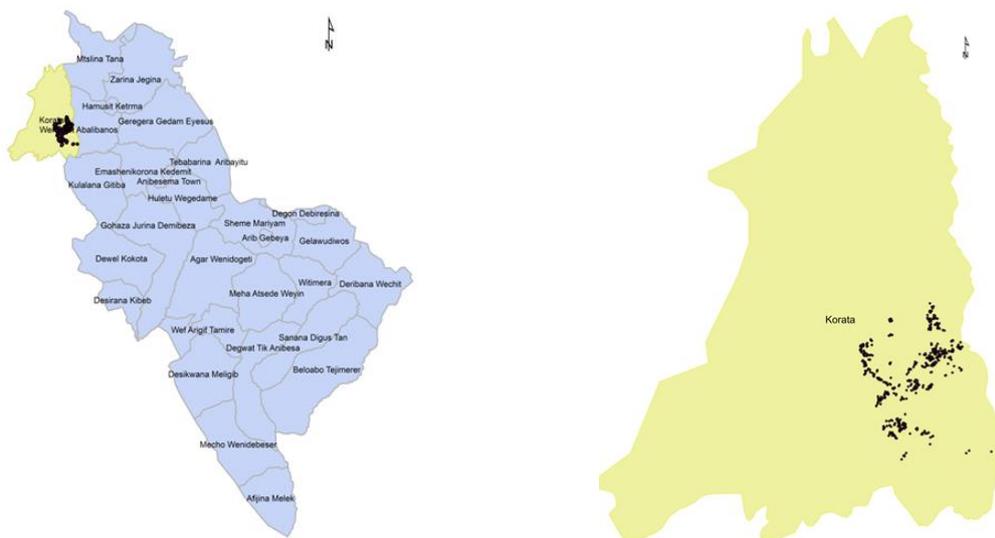
<p>Dugda</p>	<p>Poor: Food insecure throughout the year; unable to send children to school; unable to buy and use agricultural inputs; no ox or other livestock; owning less than a hectare of farmland.</p> <p>Middle: Food secure for 9 months of year; partially able to send children to school with minimum package; unable to buy and use full agriculture inputs; 2- 2.5 hectares of farmland; 2- 4 oxen.</p> <p>Rich: Food secure throughout the year; able to send all children to school with all requirements (notebooks, books, uniform etc.); fully buy and use all necessary agriculture inputs; more than three hectares of farmland; enough capital to manage family; more than four oxen.</p>
<p>Kalu</p>	<p>Poor: Household size 4-6; cultivated land less than 0.20 hectare excluding communal grazing; Annual income from 1400-1800 Birr; 3-5 Sheep, Cattle, Oxen, Camel; Productive Safety Net Program (PSNP) beneficiary.</p> <p>Middle: Household size 6-8; Cultivated land from 0.2-1.0 hectare excluding communal grazing land; Annual income from 3600-5800 Birr; 15-30 Sheep 15-30, 4-5 Cattle 4-5, 1 Oxen, 1-2 Camels.</p> <p>Rich: Household size 7-9; Cultivated land over 1 hectare excluding communal grazing land; Annual income greater than 8000 Birr; 35-55 Sheep, 7-8 Cattle 1-3 Oxen, 4-6 Camels.</p>
<p>Farta</p>	<p>Poor: No ox; no mule; residential house is tukul; family food secured only for part of year; no permanent crops or trees such as coffee and eucalyptus; less than 0.5ha farmland.</p> <p>Middle: 1- 2 oxen; a mule for farm; corrugated iron sheet covered house but not well furnished; family food secured throughout year; some permanent crops or trees such as coffee and eucalyptus; 0.5- 1.25ha farmland.</p> <p>Rich: More than 2 oxen; 1 mule for transport; well-furnished corrugated iron sheet covered house family food secured with variety and saving; extensive permanent crops/trees such as coffee and eucalyptus; more than 1.25ha farmland; sometimes weapon.</p>

Annex 3: Survey kebeles and distribution of surveyed facilities

Farta, Amhara



Dera, Amhara



Estie, Amhara



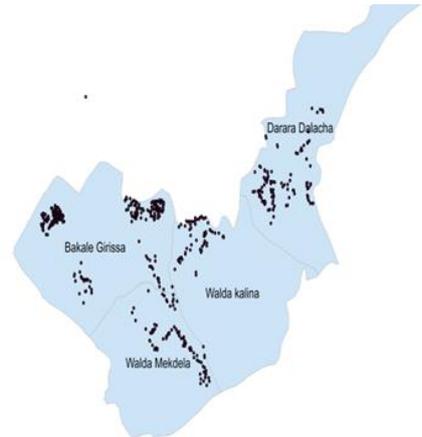
Omo Nada, Oromia



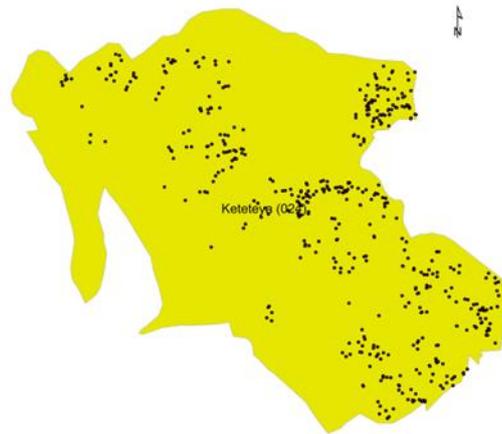
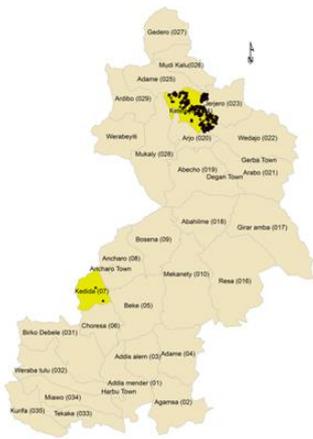
Kelala, Amhara



Dugda, Oromia



Kalu, Amhara



Visiting address

Room 804
Golagul Towers Building
Bole sub-city, Woreda 4
House no. 275/276
Addis Ababa

Postal address

P.O. Box 2
Code 1251
Addis Ababa

ethiopia@ircwash.org
www.ircwash.org/ethiopia