

COMMUNITY-LED ACCELERATED WASH (COWASH)



**Effective and sustainable
WaSH services**

**SUMMARY REPORT ON THE ASSESSMENT OF CMP
APPROACH IN HIGH TECH WATER SUPPLY SCHEMES
IMPLEMENTATION IN COWASH REGIONS**

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1 INTRODUCTION

In 2012/13 the demand for the inclusion of high tech water supply schemes for financing using the CMP approach has increased. The increased number of abandoned hand dug wells, the transformation of some rural areas to semi urban due to population & economic growth and the increased awareness of the communities on the importance of the piped water supply system were the major reasons which justified the demand.

In order to respond of the demand and start implementation of the technologies, the project made the following efforts.

- In **November 2012** assessed the high tech implementation experience of the then FinnWASH-BG programme in Benishangul Gumuz region and the UNICEF programme in Amhara region.
- In **April 2013** developed a high tech implementation guideline and shared to Amhara and Tigray regions for use and testing. It was also uploaded in the CMP web site.
- On **June 19/2013** organized a one day high tech water supply schemes implementation experience sharing workshop in the presence of all regions RSU team leaders, CMP specialists and water bureau experts. In the workshop many of the FinnWASH-BG financed high tech schemes implementation experience were shared.
- On **October 22-23/2015** organized an experience sharing visit of the RSU staffs to the then FinnWASH-BG programme implemented high tech water schemes.

The types of high tech water supply schemes included to be implemented by COWASH in the high tech implementation guideline are:-

- Shallow drilled wells fitted with hand pump.
- Rural Piped Schemes (RPS) from gravity springs.
- Rural Piped Schemes (RPS) from motorized (non-gravity) springs.
- Rural Piped Schemes (RPS) from deep well (borehole) source.

In 2006EFY Tigary and Amhara regions started the implementation of the high techs, in 2007EFY Oromia and SNNPR started and in 2008EFY all the 5 regions including the Benishangul Gumuz implemented at least one type of high tech water supply scheme.

In GTP II communities are required to have improved service level hence increased implementation high tech water supply schemes has become mandatory. COWASH phase III as a project contributing to the GTP II of the sector needs to scale up the implementation of the technologies and for this purpose the need for assessing the implementation practice of the technologies in the different regions of the project arose and included in the 2009EFY federal level plan of the project.

2 OBJECTIVES OF THE ASSESSMENT

Objectives of the assessment include:-

- To assess the regions direction in the implementation of high tech water supply schemes (HTWSS).
- To assess the regions' experience of HTWSS implementations using the CMP approach (progresses & challenges).
- To come up with recommendations on how to improve the implementation of the technologies using the approach.

- To compile and share the findings to the COWASH regions to see ways how the implementation of the technologies can be improved and agree on principles that a high tech implementation shall follow and still be implemented using the CMP approach.

3 METHODOLOGY OF THE ASSESSMENT

The assessment was made by the CMP specialist and the methodology used in the assessment was discussion with the different regions, zones & woredas stakeholders responsible for preparing directions, and involved in the planning and supporting the implementation of high tech water supply schemes. A questioner was developed and the discussion was made both face to face and telephone with the following stakeholders.

- Water bureau deputy heads Amhara & Tigray region who are also COWASH programme directors/coordinators.
- COWASH coordinators from the water bureaus of Oromia, SNNPR & BG regions.
- RSU staff (all COWASH regions),
- Zonal water department heads & COWASH focal persons from some zones.
- CMP supervisors and woreda water office heads of some woredas which have implemented the HTWSS (Duna woreda in SNNPR, Abichu Nya'a, Horro & Gumay woredas in Oromia, Oda woreda in BG, Basona Warena woredas in Amhara and Degua Tembain woreda in Tigray).

In addition discussion was made with one drilling company manger & two legal advisors.

The assessment did not include discussion with WASHCOs of the projects as it is assumed that the discussion at region & woreda levels are enough to gain understanding in the implementation practice.

4 SUMMARY OF THE FINDINGS OF THE ASSESSMENT

The assessment of the experience focussed on the following areas.

- General issues (RPS definition, regions' direction in high tech water schemes implementation, the use of the CMP high tech water schemes implementation guideline and number of high tech schemes implemented by COWASH).
- Site selection, study & design issues.
- Project application, appraisal, approval & funding agreement (FA) signing issues.
- Project contracting issues.
- Project supervision issues.
- Project finance management issues.
- Project O&M management issues.
- Challenges faced.

4.1 FINDINGS ON GENERAL ISSUES

- **The RPS definition.** The general definition in use by many of the regions and the woredas which implemented and reported RPS is a piped scheme from any source having a minimum of 2 public fountains.
- **Regions' direction in high tech implementation.** As per the Business Process Engineering (BPR) in use by regions the high tech water supply schemes site selection, study & design, contracting & contract management and supervision responsibility is given to the water bureau which can decentralize to zones

when needed. The main role of the woreda water offices is to implement hand dug wells & springs. But knowing the increased capacity of zone & woreda water offices the bureaus are not as such very strict in following what is in the BPR. Many of the regions have a plan to revise the BPR and one of the expected areas of revision is decentralization of the high tech site selection, design & implementation to zones and woredas.

- **The use of high tech water supply schemes implementation guideline.** The guideline was given to Amhara & Tigray regions for testing by the FTAT. The RSUs used many of the points in the guideline when training experts & WASHCOs but cascading the whole guideline to woredas has been lacking.
- **Number of high tech schemes implemented by the regions.** The numbers of HTWSS implemented so far by COWASH are shown in the following table.

It. No.	Region	RPS from gravity springs	Shallow well with hand pump	RPS from drilled deep wells
1	Amhara	57	46	
2	Tigray		71	2
3	Oromia	2	31	
4	SNNPRS	10	5	
5	BGR	4		
	Total	73	153	2

- The number of public fountains in the RPS ranges from 2 (in many RPSs) to 10 in Amhara & Tigray.
- In Tigray the two RPSs from deep well sources include also the drilling of the wells.
- In Amaha 8 shallow wells rolled over to the 2009EFY due to workload of the drilling company contracted and in Tigray some shallow wells & deep wells could not be implemented due to shortage of budget.
- Some shallow wells were abandoned during drilling.

4.2 OTHER MAJOR FINDINGS AS PER THE PROJECT CYCLE STEPS

Site selection

Almost all the sites for shallow & deep wells were selected either by the zone or the water bureau hydro-geologists. But during site selection the woreda hydro-geologists were with the zone & bureau experts to gain experience.

Study & design

Many of the RPSs were designed by the woreda or zone experts except the two RPSs from deep well sources in Tigray where the designs were prepared by the water bureau experts. During designs preparations woredas used GPSs for measuring elevation differences between points. Some zones also checked some designs prepared by woreda experts.

Project application

Every project WASHCO applied to the woreda water office but the quality of the applications varies from one applicant to the other (some applied the specific technology they want and some applied in general for a water schemes). Some of the applications needed refinement/re-writing by water office experts.

Desk appraisal

The project applications were appraised at desk level (WASHCO formation, upfront cash for O&M, minimum % of community contribution, support letter of kebele administration etc.).

Field appraisal

For most of the project applications the field appraisal was made twice (two stages). First the woreda experts discussed with communities & checked their commitment & feasibility of the technology requested. After they got green light from the community, they requested the zone or bureau to select sites for wells and study & design for RPSs. Once the site selection or study & design completed the woreda experts went again to communities and finalized the appraisal.

Approval

Every project application eligible for funding was approved by WWT.

Signing of FA

Every approved water scheme WASHCO signed funding agreement with the WWT chairperson.

Contract management

The contracting and contract management of all RPSs from gravity springs were handled by WASHCOs like that of hand dug wells & on spot springs with the technical support of the woreda water office.

The contracting and contract management of shallow wells with hand pumps varies from region to region, zone to zone and woreda to woreda based on the past experience of the regions in implementing the technology, the experience & capacity of the zones & woredas and the potentiality of the zone or woreda to get component drilling companies. The common thing in all the modalities is that WASHCOs delegated the WWT to manage on their behalf then the WWT either handled or delegated the zone or bureau to manage.

In many of the SWs community prepared access roads for rigs. And in all the SWs WASHCOs supervised the daily drilling progress, and communities supplied construction materials for well head & fence and fenced the well.

Procurement

In some RPSs WASHCOs advertised the labor work to artisans or MSEs and in others directly awarded to artisans having better performance in spring construction. WASHCOs procured the construction materials from the woreda or zone capitals and in very few cases also from regional capitals.

Construction supervision

Each woreda water office assigned supervisor to each RPS. In addition zone water offices experts & RSU staffs also gave supervision support.

Payment to artisans/MSEs

In RPS artisans/MSEs prepared the payment, the supervisor certified and the WASHCO chairperson approved and effected the payments (paid in hand and received receipt).

Community Contribution

In all the RPSs community contributed both labor & materials valued more than 15% of each project cost.

Delegation

In Abichu Nya'a of Oromia WASHCOs delegated the WWT to tender the work (drilling, pump supply & installation and well head construction) and the WWT gave assignment to the finance office to tender. The woreda has experience of contracting shallow wells by the woreda budget.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS WASHCOs delegated the WWT to tender & manage the work (drilling, pump supply & installation and well head construction), then the woreda water offices delegated the zone water departments as it was given responsibility to delegate by the WWTs.

In Amhara and BSGR WASHCOs delegated the WWT to tender & manage the drilling & casing installation work only (supply & installation of hand pumps and well head construction are not delegated to WWT), then the woreda water offices delegated the water bureaus as it was given responsibility to delegate by the WWTs

In Tigray for shallow wells drilling, deep wells drilling and for RPS from deep wells WASHCOs delegated the WWT to tender & manage the construction of the scheme (supply & installation of labor & construction materials except those to be supplied by the community), then the woreda water offices delegated the water bureau to handle the work on their behalf.

Tender document preparation

In Abichu Nya'a of Oromia the tender document was prepared by the woreda water & finance offices by including the location & bill of quantity of each well. The tender document clearly stated that the drilling company shall sign the contract agreement with WASHCOs and payment is effected by WASHCOs.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS the zone water departments prepared the tender documents by clustering in woredas & including the location & bill of quantity of each well. The tender document clearly stated that payment is effected by WASHCOs.

In Amhara, BSGR & Tigray the tender documents for well drillings prepared by the bureau by clustering in woredas or zones by including the location & bill of quantity of each well. The tender document clearly stated that payment is effected by WASHCOs.

In Tigray RPS from deep wells tender documents were prepared by the bureau basing the designs prepared by the bureau.

Tendering

In Abichu Nya'a of Oromia the tender was advertised in the Addis Zemen News Paper by the finance office. In the presence of 3 WASHCO members from each well tender was opened at woreda and winner identified.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS tenders were advertised in the Ethiopian Herald news paper by the zone water department. Each zone tender committee opened the tenders and identified the winners.

In Amhara, BSGR & Tigray the tenders for the well drillings were advertised in the Ethiopian Herald news paper by the bureaus. Each bureau tender committee opened the tenders and identified the winners. In BGR the tenders were sold and opened in Addis Ababa and this is a practice also for shallow/deep wells by government and other financiers.

In Tigray RPS from deep wells the bureau advertised in the Ethiopian Herald news paper. The bureau tender committee opened the tender & winner identified.

Contract signing

In Abichu Nya'a woreda of Oromia each WASHCO signed the drilling contract with the winner drilling company.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS the zone water departments signed the drilling contract with the winner drilling company for each lot (each woreda) and sent the copy to each woreda water office.

In Amhara, BSGR & Tigray the bureau signed the drilling contract with the winner drilling company for each lot (each woreda or zone). In BGR the bureau copied the contract agreement to woredas but not in Amhara & Tigray.

In Tigray RPS from deep wells the bureau signed the construction agreement with the winner contractor and copied to the woreda water office. The office copied the agreement to WASHCO.

Drilling supervision

In Abichu Nya'a the woreda of Oromia water office assigned a hydro-geologist for the supervision.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS each zone water department assigned a hydro-geologist for the supervision.

In BSGR the water bureau assigned hydro-geologist but in Amhara the zone or woreda water offices hydro-geologists conducted the drilling supervisions.

In Tigray deep well drillings were supervised by the water bureau and shallow wells were supervised by the hydro-geologist of each woreda water offices.

In Tigray for Edega berhe RPS the supervisor was assigned from the woreda and for Alasa was assigned from the bureau.

Payment to drilling company

In Abichu Nya'a woreda of Oromia the company requested payment, the supervisor certified and the WASHCO chairperson approved & WASHCO paid the money to the company in hand after it deducted the 2% withholding tax. The company gave receipt to WASHCO once it received the money. No advance payment made to the drilling company.

In Jimma & South West Shoa zones of Oromia and Hydiya zone of SNNPRS the drilling companies requested payment of each well to the zone water department, the supervisors certified & the department sent the payment to the woreda water office for WASHCOs to approve and effect payment to the drilling company and each WASHCO chairperson approved & WASHCOs paid the money to the drilling companies (in many cases WASHCO withdrew the money from MFI and deposited in the companies' bank account but in Duna woreda of Hadiya zone OMFI agreed with the CBE Duna branch and WASHCOs directly transferred from the OMFI account at CBE in Duna to the drilling company account at CBE) after it deducted the 2% withholding tax. The drilling companies gave receipt to each WASHCO once it received the money.

In Amhara and BSGR each drilling company requested payment to the bureaus, the supervisors certified, the bureaus approved & sent the payment to the woreda water office for WASHCOs to co-approve and effect payment to the drilling company and each WASHCO chairperson approved & WASHCO paid the money to the drilling company (WASHCO withdrew the money from MFI and deposited in the companies' bank account

after it deducted the 2% withholding tax). The drilling company gave receipt to each WASHCO once it received the money.

In Tigray shallow well drilling WASHCOs did not approve the payment but only signed on the functionality of the scheme in a provisional acceptance format prepared by the bureau. Once the bureau got the provisional acceptance forms signed by each WASHCO, the bureau paid to the drilling company from the CMP investment fund account at the water bureau. The WASHCO documents are kept in the finance section of the bureau.

In Tigray RPS from deep wells in case of interim payments (non-final payments) the contractor requested payment, the supervisor certified and the bureau approved and transferred the payment to the contractor. In case of final payment the bureau needs the provisional acceptance form for the completeness of the work signed by WASHCOs. The WASHCO documents are kept in the finance section of the bureau.

In Tigray both RPSs community contributed labor for digging trench for pipes laid and backfilled above pipes once laid and contributed different construction materials. Although the figures calculated by woredas seem exaggerated as per the CMP specialists, both communities contributed not less than 15% of the projects cost

Hand pump procurement & installation, and well head construction

In Amhara and BSGR WASHCOs procured the hand pumps & well head construction materials and contracted artisans for hand pump installation & well head construction. But in other regions the contract given to the drilling company also includes hand pump supply & installation and well head construction.

4.3 FINDINGS ON PROJECT O&M MANAGEMENT

Shallow wells

- All the shallow wells have WASHCOs like that of hand dug wells & on spot springs as per the WASHCO structure set by regions.
- Pump attendants have been trained for many of the shallow wells.
- Many WASHCOs set a tariff equal to that of hand dug wells (HDWs) but some woredas advised WASHCOs to set tariffs higher than that of HDWs due to increased depth of the wells.

RPS from gravity springs

- Every RPS has a WASHCO and some regions such as Amhara are revising the WASHCO structure to be in line with the region's directive issued some months ago.
- All the RPSs have set a flat rate tariff like that of HDWs & on spot springs.
- Caretakers are trained for many of the RPSs to conduct at least maintenance of faucets.

RPS from deep wells sources (2 in Tigray - Alasa & Edega berhe)

- Both schemes have WASHCOs as per the CMP high tech manual.
- Alasa RPS users contributed Birr 20,000 and Edega berhe RPS users Birr 23,000 as upfront cash for O&M use.
- Both schemes users have set tariffs on volumetric basis. Edega berhe RPS users set Birr 20/mcu (which was revised from Birr 12.5) and Alasa RPS users set Birr 12.5/mcu which has a plan to increase to Birr 20/mcu. The initial tariffs for both schemes were set based on the tariff structure assessed from the nearby RPSs of related nature by the woreda water office experts & WASHCOs.

- Both have employed water sellers/tap attendants for each public fountain and employed guards & generator operators.
- WASHCOs in O&M and other employed staffs in their areas of responsibility have been trained by the water bureau & woreda water office experts.

4.5 MAJOR CHALLENGES

The following are the major challenges raised during the discussion.

- Resistance by some WASHCOs to effect payments of abandoned wells to the drilling companies (Amhara & Gumay in Oromia).
- Shortage of surveying equipments and surveyors in the woreda water office to prepare designs for relatively large RPSs.
- Delay in shallow wells tender advertisement by bureaus waiting delegation from many woredas (for advertising the tender in cluster).
- Need for repeated bid advertisements to get drilling companies for shallow well drillings.
- Difficulty in transporting construction materials in number of RPSs due to the difficult nature of the terrains where the RPSs are constructed.
- Withholding the 2% withholding tax from the payment to the drilling company by WASHCOs and sending the receipt to the drilling company (Amhara).
- Very less possibility/impossibility of WASHCOs to participate on bidding process for procurements delegated to others may cause losing sense of ownership by communities & lack of capacity by WASHCOs to handle O&M management & rehabilitations in future.
- Different working modalities in the same kebele or area may cause a challenge in future implementation (shallow well drilling by SDG fund using WMP approach and the CMP approach).
- As RPSs have different management structure and tariff they need detail discussion with all the community members hence the appraisal needs more time than that of HDWs & on spot springs.

5 CONCLUSIONS OF THE ASSESSMENT

- There is high demand for high techs from regions due to the need for better standards of services in the GTP II and the existence of communities and institutions which could not be served by low tech water supply schemes.
- CMP in high tech water supply implementation is possible and encouraging.
- RPSs from gravity springs are just extensions of the on spot springs and WASHCOs fully managed the implementation by themselves with the technical support of woredas.
- Supports given by the water bureaus & zones to woredas in site selection, design, appraisal, contracting, supervision and training in high tech implementation is very encouraging.
- The technical capacity of woreda staffs in site selection & designs preparation is improving from time to time but building the capacity in terms of surveying equipment and in study & design of RPSs is very important to prepare safe & economical designs.
- In shallow well construction all regions have tried their best to make it as close as possible to the CMP principles and different from WMP approach.
 - WASHCOs co-approved & do the payments to the drilling companies from their MFI account (in all regions except Tigray). In Tigray the WASHCOs signed in a format for the completion of the project and the water bureau paid.
 - WASHCOs participated in the bid opening & signing the agreement with the drilling company (North Shoa zone woredas in Oromia).

- **Splitting contracts.** WASHCOs procured hand pumps and contracted the head works to artisans instead of drilling company (in Amhara & BG regions).
- RPSs management structures to be in line with the WASHCO establishment and legalization directives/guidelines of each region.
- The high tech implementation guideline shall include the findings of the assessment & the discussion on the findings of the assessment and be updated.

6 RECOMMENDATIONS

6.1 GENERAL & ON SOME OF THE CHALLENGES RAISED

Need for repeated tender for shallow wells by zones

- List & contact address of licensed drilling companies be provided by bureaus & FTAT (FTAT attached the list & contact addresses of many of the drilling companies got licence from MoWIE in Annex 1).

Resistance of some WASHCOs not to effect payment of abandoned wells

- Seek zone or region experts' assistance in site selection for hydro-geologically challenging sites/areas.
- Make clear to WASHCOs during the CMP management training the number of trials allowed, the chances of SWs to be abandoned like that of hand dug wells and the associated responsibilities of the WASHCO (client) and the drilling company on this.
- Make close drilling follow up by drilling supervisor & WASHCOs and the supervisor to give clear explanation to WASHCOs on the reasons for abandoning of the well.
- With all the above efforts if the resistance to continue the region has to see ways how the company to get paid.

WASHCOs lose of ownership & capacity if many of the contracting is done by others through delegation

- See all possible ways such as split contracting so that WASHCOs can handle procurements for part of the construction work they can, make WASHCOs be involved in the tender opening when possible even during delegation etc.

In Amhara decentralization of shallow well contracting and contract management to the zones has to be seen. For this purpose zones experts have to be trained in the contracting and contract management of drilling works.

In Tigray WASHCOs have to at least co-approve the payment with the bureau. This is one of the most important activity which creates transparency of the approach and ownership by WASHCOs which represent the community.

Signing MoU for implementation of RPS from non-gravity springs and deep wells. These are the relatively difficult technologies to be implemented fully by WASHCOs, involve many actors & implementation may take more time. So signing MoU with the actors will contribute for the effectiveness of the implementation. Amhara region water bureau has good experience on this.

6.2 PREPARATORY ACTIVITIES

Promotion, application & appraisal

- Promotional materials for COWASH has to include also high tech CMP implementation
- Focus promotion to institutions and kebeles where shallow ground water is not available
- Use revised format for application and woredas to assist WASHCOs in proper application preparation
- Use revised high tech appraisal forms for desk and field appraisals.
- All projects are to be approved by the WWT and funding agreement signed by WWT and WASHCO
- Promotion, application preparation and appraisal trainings shall also include high tech CMP
- WASHCO training manual to include also some important features of the high tech CMP

Up-front cash contribution towards O&M for high tech CMP schemes

- RPS by gravity: Number of public fountains x point water source up-front cash amount
- RPS by motor: Higher than Gravity RPS
- Shallow well with hand pump: Minimum 2,000 Birr (somewhat higher than that of hand dug wells).

Community contribution for construction

- Shallow wells drilling & well head construction minimum of 5% of the drilling & construction cost
- Gravity RPS minimum of 15% of the construction cost
- Motorized RPS from spring minimum of 10% of the total construction cost
- Motorized RPS from borehole (including or excluding well drilling) minimum of 10% of the total construction cost.
- Deep well/borehole drilling only (if this application is to be treated as phase I) minimum of 1.5% of the drilling cost

Well drilling site selections, and study & design of RPSs

- Site selection report having at least the location of the site, well drilling diameter and estimated target depth of the well is a must.
- Motorized RPS from springs and deep wells (which need electro-mechanical works) have to be prepared by the zone water department or water bureau experts
- Selected woredas can design gravity RPSs. Woreda to get surveyor and equipment support from the zone or bureau. Zone engineers need to review the design.
- The RPS design team needs to have at least an engineer, a socio-economist and a surveyor. The inclusion of an environmentalist is also encouraged.
- For RPS a design report having at least hydraulic calculation, pump and generator capacity calculation, drawings, specifications and price bill of quantities is a must.
- The legalization process for RPS WASHCOs has to be started early as it may take long period of time
- ALL 5 COWASH regions need to have process in place for legalization.

6.3 IMPLEMENTATION PHASE

CMP approach is a matter of empowering & increasing ownership of the community on their WASH projects by giving the responsibility of managing or deciding on the resources granted to it with the aim of facilitating implementation, and ensuring functionality & long term sustainability of the projects”.

So in order to say CMP approach is used for high tech water supply schemes the possible alternative implementation arrangements have:-

- To have real/tangible elements that differentiates the CMP approach from the WMP approach.

- To empower the community (of course represented by WASHCOs) by handling the whole or part of the implementation process by its own with technical assistance from the sector experts or at least to exercise its decision power on the resources allocated/granted to the community.
- To contribute to the capacity building of the local artisans who will be good assets for maintenance, rehabilitation or future expansion of the schemes.

Generally the following three possibilities (a, b and c) are recommended in high tech water supply schemes implementation using the CMP approach in their order of preference (**a** is the best option).

1. **The WASHCO to fully handle** the procurement and financial management like that of the low tech water supply schemes.
2. **The contracting and its management to be split** depending on the type of the project basing on the manpower, construction materials and equipments required for its implementation. The splitting is proposed in the following ways.
 - a. WASHCO to procure and manage the portions of the construction activities which are easier to be managed by them and,
 - b. WASHCOs to delegate the WWT to handle the contracting and contract management of the portions of the work which are relatively difficult to be managed by them.

The well drilling contracted to private drilling companies by WWT/Zone/bureau up on delegation by WASHCOs and procurement of hand pump by WASHCOs & contracting the pump installation & well head construction to artisans by WASHCOs is one of splitting contracting example already exercised. The method also creates job opportunity to the local artisans involved in water works construction.

3. **WASHCO to delegate the WWT** to handle the full contracting and contract management of the works.

In the delegated procurements the following points have to be taken in to consideration.

- If the WWT does not have the capacity to handle the delegated assignment, it can then delegate the zone water department or the water bureau.
- Type of activities or processes delegated to be clearly stated in the delegation letter
- The tender document has to include what will be the roles of the community (WASHCO) in the contract management such include co-approving of the payments with the delegated body who signed the contract agreement and effecting the payment to the contractor or drilling company.
- WASHCOs to participate in the tenders opening when possible.
- WASHCOs can sign or counter-sign the contract agreement with the drilling company or the contractors.
- WASHCOs have to co-approve the payment certificate together with the contracting body who signed the agreement (woreda finance, zone water department or water bureau) and WASHCOs to transfer the money to the contractors/drilling company.
- In case where the contract with the contractor/drilling company is signed by the water bureau and if found to be advantageous due to various reasons, the possibility of the bureau to pay to the contractor/drilling company can be seen. In this case the WASHCO also has to co-approve the payment and write a delegation letter to the bureau to effect also the payment if the initial delegation letter does not include this.

Construction/drilling supervision. Depending on the type of the project and the availability of the required expert woreda water office, zone water department or water bureau shall assign supervisors for the works.

6.4 O&M PHASE

Before the scheme starts to function make sure that:-

- The WASHCO has to employ the required technical staff for the scheme such as tap attendants, plumber, mechanics, guard and the like based on the scheme type and size.
- The community has to decide the required tariff before the scheme starts functioning. The woreda has to provide information which will assist the community to decide on the tariff amount.
- The WASHCOs have to be trained in O&M of the scheme.
- The required maintenance tools have to be provided to the WASHCO.
- The employed technical staffs have to be trained in their areas of responsibilities.
- A clear tariff collection, saving, usage and auditing system has to be designed.
- A clear programme for WASHCO members meeting, and WASHCO meeting with the community members has to be designed.

Annex 1. List of some of the licensed drilling companies in Ethiopia with their contact addresses

I.N	Name of drilling company	Region	Telephone
1	UNITED RAWA INDUSTRIAL ENG. P.L.C	A/A, Tigray	0914300017/0911103196
2	KEY ENGINEERING PLC	A/A	0930012756
3	KLR ETHIO WATER WELL DRILLING P.L.C	A/A	11157803
4	MYUNGSUNG INTERNATIONAL DEVELOPMENT P.L.C	A/A	116295740
5	DRILWELL WATER DRILLING P.L.C	A/A	930109692
6	FUNDACION AYUDARE /ETIOPIAL BRANCH/	A/A	912642468
7	DEMIS ZEWEDE GEBERESLASSE	A/A	912756346
8	ZEKALAY GENERAL TRADING PLC	A/A	930101275
9	SAB DRILLING & WATER WORKS P.L.C	A/A	0116-639940
10	ATLAS WATER WELL DRILLING P.L.C	A/A	914303444
11	ROYAL BOREHOLE DRILLERS	A/A	930013979
12	TAG WATER WELL DRILLING CONSTRUCTION AND REH. P.L.C	A/A	943873251
13	TANA WATER WELL DRILLING P.L.C	A/A	0113-205610
14	QANTAS WATERWELL DRILING & RESEARCH P.L.C	TIGRY	937607911
15	JIANGXI COALFIELD GEOLOICAL GENERAL INVESTIGATION CO .LTD	A/A	920333099
16	A.T.F WATER WORKS CONSTRUCTION P.L.C	A/A	930012311
17	AL - NILE BUSINESS GROUP P.L.C	A/A	116631862
18	EARTH WORK GETECH P.L.C	A/A	9126242438
19	PANGEA DRILLERS PLC	OROMIYA	930012846
20	KIDMER ENGINEER NG P.L.C	A/A	911368729
21	AXIS ENGINEERING PLC	A/A	911200313
22	NOH WATER WELL DRILLING	TIGRAY	914314326
23	COLLLAR ENGINEERING P.L.C	A/A	911222292
24	GLOBAL WATER WELL DRILLING P.L.C	A/A	1116675082
25	STAR WATER WELL DRILING P.L.C	A/A	911532152
26	MAHDER MEHARI MESFIN	A/A	921018528
27	DROPS ENGINEERING P.L.C	A/A	911581310
28	HENAN ZHONGZHOU INS/OFF GEO. MINE/E4NG.RECO./ETH. BRANCH/	A/A	923784110
29	RIZU DRILLING EXPLORATION SERVICES SUPPLY PLC	TIGRY	914300916
30	NILE DRILLING & EXPIORATION	A/A	911522599

Annex 1. List of some of the licensed drilling companies in Ethiopia with their contact addresses (Continued)

I.N	Name of drilling company	Region	Telephone
31	SWWCE /SOUTH WATER WORKS CONSTRUCTION ENTERPRISE	SNNP	116200453
32	C.R DRILLING & EXPLORATION PLC	A/A	911217815
33	DAMLA WATER DRILLING PLC	A/A	935986655
34	GERENI WATERL DRILLING & CONSTRUCTION	D/D	812998989
35	ANBU GEO -TECH& DRILLING PLC	A/A	116478229
36	AQUA BORE HOLES PLC	A/A	118956208
37	SHANDONG GEO- MINERAL ENGINEERING COMPANY	A/A	114341693
38	ORCHID BUSINESS GROUP PLC	A/A	0113-716339/52
39	CGE OVERSEAS CONSTRUCTION ETH. LLTD	A/A	913144777
40	WATER WELL DRILLING ENTERPRISE	AMARA	582200460
41	BROTHERHOOD WATER WELL DRILLING & CONSTRUCTION PLC	A/A	1116478230
42	AFX OASIS WATER RESOO & HYDRO POWER ENGINEERING CONSTRUCTION PLC	A/A	929114004
43	SUMAYAN ENGINEERING PRIVATE LIMITED COMPANY PLC	A/A	911516655
44	TEKEZE DEEP WATER WELLS DRILLING PLC	TIGRY	11751660
45	ASSOCIATED DRILLING& EXPLORATION PLC	A/A	912507629
46	JANJO GENERAL TRADING PLC	A/A	930098683
47	HARDROCK DRILLING& ENGINEERING PLC	A/A	911508220
48	HELAN CONSTRUCTION PLC	A/A	116675043
49	GONDWANA ENGINEERING PLC	A/A	114407468
50	ESTIPHANOS GENERAL MACHINERY	TIGRY	344402430
51	AVON WATER DRILLING PLC	A/A	939655454
52	TAM. GEO ENGINEERING PLC	A/A	911211792
53	ELGILOOP EI-SAFIYAFOR DRILLING CO.LTD	A/A	918225506
54	BPS WATER DRILLING & EXPLORATION PLC	A/A	911218766
55	ECC ENERGY PLC	A/A	114391560
56	CLASSIC CONSTRUCTION P.L.C	A/A	115518177
57	DEEP WATER TECHNOLOGY P.L.C	A/A	929103252
58	KARAWUR TRADING PLC	A/A	0918702084