COMMUNITY-LED ACCELERATED WASH (COWASH)

Effective and sustainable WaSH services

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

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ACRONYMS

Acronym	Description
ACSI	Amhara Credit and Saving Institution
BPR	Business Process Re-Engineering
CBE	Commercial Bank of Ethiopia
CMP	Community Managed Projects
COWASH	Community-Led Accelerated WaSH Project in Ethiopia
FA	Funding Agreement
FTAT	Federal Technical Assistant Team
FinnWaSH-BG	Finland Government supported Water Supply, Sanitation and Hygiene Programme in Benishangul-Gumuz Region
GTP	Growth and Transformation Plan
KWT	Kebele WASH Team
MSE	Micro and Small Enterprise
MoU	Memorandum of Understanding
NGO	Non Governmental Organizations
OCSSCo	Oromia Credit & Saving Share Company
O&M	Operation and Maintenance
OMFI	Omo Micro Finance Institution
PTA	Parents' Teachers Association
PLC	Private Limited Company
RPS	Rural Piped Schemes
RSU	Regional Support Unit
SDG	Sustainable Development Goal
SNNPR	South Nations & Nationalities Peoples' Regional State
UNICEF	United Nations Children's Fund
WASHCO	Water, Sanitation and Hygiene Committee
WMP	Woreda managed project
WWT	Woreda WaSH Team

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1 INTRODUCTION

1.1 GENERAL ON CMP APPROACH

Community Managed Project (CMP) approach is a rural WASH provision approach that advocates a community led project implementation and management. In this approach the users are planners, executers and managers of their WASH facilities. It is one of the four rural water supply implementation modalities approved in the WIF along with the Woreda managed project (WMP), NGO managed project and self supply project.

The two very unique features of the CMP approach are the responsibility of the community financial management and community procurement which are elaborated as follows.-

Community financial management:-the community (WASHCO) is responsible for managing the investment funds granted by donors, government and also the funds contributed from the communities.

Community procurement:-the Community (WASHCO) is directly responsible for procuring the goods and services required for scheme construction and installation.

Why the two unique features of the CMP approach are included?

Based on different studies two of the major challenges in the rural water sub-sector in the country include **slow progress in the implementation of water schemes** and **high level of non-functionality of water schemes**. So the CMP approach was initially designed to contribute for the alleviation of the two major challenges of the sub-sector.

Different studies conducted in the CMP approach magnified the effectiveness of the approach in the alleviation of the two major challenges of the sub sector. Some of the findings of the studies recorded as benefits of the CMP approach include:-

- **Increased ownership** due to the responsibilities of communities in implementation which in turn improved functionality of schemes & increased O&M handling capacity of communities.
- **Increased job opportunities** at local level (such as woreda level suppliers, artisans)
- **Increased community leadership** in general and women empowerment (leadership) in particular.
- **Efficient use of available woreda capacity** (re-directing woreda capacity for facilitation from implementation) which can be used for conducting effective supervision to number of projects at a time to ensure quality of construction.
- **Faster implementation rate** due to use of simple procurement procedure manageable by WASHCOs, financial management and motivation of the community due to the project implementation responsibility given to it.

- **Cost effective** by increasing the community contribution which limit the use of the cash which is the scarce resource the government has, minimized overhead costs of implementation due to communities taking of more responsibility and minimized wastage of construction materials due to the use of simple and bureaucracy free procurement procedure.

In short "**CMP** is a matter of increasing ownership of the community on their WASH projects and empowering them by giving the responsibility of managing and making decision on the resources allocated/granted to it (of course on top of the resources mobilized from it) with the aim of facilitating implementation, and ensuring functionality & long term sustainability of the projects".

So when we are adapting/re-directing or modifying the CMP approach in use for low tech water supply schemes to suit for the high tech implementations, we have to really see how the approach will make communities to exercise their decision power and it ensures/increases their ownership which are very important elements for long term sustainability of the schemes/facilities. In addition we have to see how the above recorded benefits of the low tech implementations are to be also parts of the high tech implementation.

1.2 LOW TECH & HIGH TECH WATER SUPPLY SCHEMES

Many literatures deal more on low tech water supply technologies which is defined in short as the water supply scheme which uses simple equipment & technology for the implementation, operation and management of the scheme that the local people are able to use and mange without much cost. Although they are exposed to source unreliability and sensitive to contamination, hand dug wells and on spot springs are the most common low water supply technologies stated in many literatures. As there is high correlation between low tech and low cost in many literatures they are used interchangeably. The basic features of the low tech water supply technologies/schemes are:-

- Labor intensive - utilizing and creating employment for local labor.
- Use of technology and tools in construction that are locally available, low cost and the major part or the entire scheme implementation can be done by the knowledge of local people.
- Use of water extracting technologies that are technically simple to be operated by knowledge of the local community and at low cost.

That is why the CMP approach has been focusing more in low tech water supply schemes implementation in the past couple of years.

Therefore the opposite of the above definition of low tech water supply schemes can be used for high tech water supply schemes which in some literatures written as high cost due to high correlation between the two. Although the degree of high techs may vary from technology to technology, the following water supply technologies/schemes have been identified as high tech water supply schemes for the CMP implementation.

- Shallow drilled wells fitted with hand pump.

- Rural Piped Schemes (RPS) from gravity springs with distribution system.
- Rural Piped Schemes (RPS) from non-gravity (motorized) springs with distribution.
- Rural piped schemes from deep well (borehole) source.

1.3 CMP IN HIGH TECH WATER SCHEMES

CMP approach in rural water supply and sanitation implementation has been in use in Ethiopia since January 2003 G.C. Before the COWASH project started the major experiences in the use of the CMP approach in terms of technology is manly for hand dug wells and on spot springs except very few piped schemes financed in Amhara region by the then RWSEP, UNICEF programme in Amhara region and some financed in the Benishangul-Gumuz region by then FinnWASH-BG programme. Due to the recognition of the benefits of the CMP approach inclusion of high water supply technology financing using the CMP approach such as shallow drilled wells fitted with hand pumps, rural piped schemes from deep borehole source and piped schemes from spring source has been found to be very important in COWASH regions. Since 2006EFY regions have started to implement high tech water supply schemes Amhara and Tigray taking the lead in terms of start year of implementation and number of high tech water schemes implemented so far.

In order to effectively start and continue the implementation of the high tech ware supply schemes in the COWASH regions the FTAT of COWASH has made a number of contributions which are listed below.

- In **November 2012** assessed the high tech implementation experience of FINNWSH-BG programme in Benishangul Gumuz region and the UNICEF programme in Amhara region.

- Based on the experience shared from FINNWASH-BG & UNICEF programmes, in **April 2013** developed a high tech implementation guideline and shared to Amhara and Tigray regions for use and testing. At that time as they were the only regions planned to implement high tech water supply schemes.

- On **June 19/2013** organized a one day high tech water supply schemes implementation workshop in Dukum town 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 was shared.

- On **October 22 -23/2015** organized an experience sharing visit of the RSU staff to FINNWASH-BG programme implemented high tech water schemes.

For scaling up the implementation of the high tech water supply schemes in phase III of the project the need for assessing the experiences of different COWASH regions in implementing the different high tech water supply schemes was planned and one of the activities of the federal COWASH in the 2009 EFY is put as **"Conduct rapid assessment on the high-tech CMP implementation experience in the 5 COWASH regions".**

For this purpose the assessment on the experience from all the 5 COWASH regions have been made and presented in this report.

2 SOME HIGHLIGHTS OF THE CMP HIGH TECH IMPLEMENTATION MANUAL

The original/main CMP investment fund management guideline in use by the project gives little room to CMP project processing cycles and procedures to be easily used for high water supply technology options hence a need for the preparation of implementation manual for CMP approach for such technologies has arisen and its preparation was finalized and shred to Amhara and Tigray regions for use in April 2013. Some of the major points included in the manual are summarized as follows.

a) It lists the types of water supply technologies/schemes to be classified as high tech mainly from the points of view of the CMP implementation as:-

- Shallow drilled wells fitted with hand pump.
- Rural Piped Schemes (RPS) from gravity springs with distribution system.
- Rural Piped Schemes (RPS) from motorized (non-gravity) springs with distribution.
- Rural piped schemes from deep well (borehole) source assuming the well has already been drilled by the project or by any financer.

In terms of implementation practice, for rural piped schemes from deep well sources the following is the common practice:-

- Initially a borehole is drilled as phase I of the project
- The design of the schemes is prepared based on the yield of the borehole.
- The electro-mechanical and civil works are constructed as phase II of the project.

So in this case borehole drilling is taken as one project application as phase I of the RPS from deep well sources.

b) Planning, study and design of high technology water supply options and supports required from the woreda, zone and water bureau.

c) Application and appraisal procedures & formats of high tech water schemes.

d) It estimates & sets minimum percentage of community contribution for different high tech water schemes. The figures put in the manual are as follows.

- Shallow drilled wells fitted with hand pump **minimum of 5%**.
- Rural Piped Schemes (RPS) from gravity springs with distribution system **minimum of 15%**.
- Rural Piped Schemes (RPS) from motorized (non-gravity) springs with distribution **minimum of 10%**.
- Rural piped schemes from deep well (borehole) source **minimum of 10%**.
- Deep well/borehole drillings for rural piped schemes sometimes the well drilling may come as a separate application) **minimum of 1.5%**.

e) The management structure for Rural piped schemes (for single village & multi-village).

f) Procedure for conducting affordability and willingness to pay assessment and set water tariff.

g) Procurement procedures and threshold to be followed for goods, services and works.

h) Support from zones & regions in the supervision of high tech schemes implementation

i) Options for payment transfer to contractors of RPSs.

j) Delegating procurements to WWT

- It states the possibility of delegating the tendering and related activities to the WWT and WWT in turn can delegate the zone water department or water bureau but in the worst scenario approval of the payments to be made to contractors and drilling companies has to be approved by the WASHCO chair person with the technical support and certification of the payment to be given by the woreda, zone and water bureau experts whoever is assigned for the supervision of the work.

k) Recommends the physical capacity building package and trainings to be provided to the management body (WASHCO) and technical staffs of the RPS (plumbers, mechanics operators, water sellers etc.).

3 OBJECTIVE OF THE ASSESSMENT

The main objective of the assessment is to assess the experience of regions how they have been implementation the high techs in the CMP approach and share the experience to the COWASH regions and design ways how the high tech water schemes be implemented by the CMP approach without violating the basic principles of the approach and taking into consideration the relatively complex natures and the capital intensive nature of the technologies.

The specific objectives of the assessment include:-

- To assess the region/water bureau direction in the implementation of high tech is supply schemes.
- To assess the regions experience in high tech implementation in using the CMP approach in general and the use of CMP high tech implementation manual in particular.
- To assess the challenges faced at all levels in the implementation of the high tech water schemes in the CMP approach.
- To collect recommendations from the regions for effective implementation of the high tech water schemes without violating the major principles of the CMP approach and taking the technical complexity and the capital intensive nature of the technologies.

- To compile and share the different regions experience in the high tech implementations using the CMP approach.
- To discuss with the COWASH regions to see ways how the implementation of high techs be improved and design minimum principles that a high tech implementation all follow and still be implemented using the CMP approach.

4 METHODOLOGY & LIMITATIONS OF THE ASSESSMENT

The methodology used in the assessment is that the discussion with the different regions water bureau deputy heads, CMP coordinators from the water bureaus, RSU staff, contractors, CMP supervisors and water office heads of project woredas which who have implemented the high tech water schemes. For this purpose a questionnaire developed by the FTAT was used. **The questionnaire is attached as Annex 1 of this report.**

The assessment may have a limitation that it did not asses and discuss with WASHCOs of the projects and did not observe project files due to time constraint and other reasons and assuming that the information collected from the different levels seems adequate to gain understanding in the implementation practice.

5 ASSESSMENT REPORTS FROM THE REGIONS

The experiences from the 5 regions have been made by the CMP specialist of the federal COWASH focusing on the following major areas.

- General issues (RPS definition, regions' direction in high tech water schemes implementation & the use of the CMP high tech water schemes implementation manual).
- Site selection, study & design issues
- Project application and appraisal issues
- Project contracting issue
- Project supervision issues
- Project finance management issues and
- Project O&M management issues.

Number of issues was raised under each major category of issue.

For the sake of simplicity the assessment result of each region is presented separately here under.

5.1 BENISHANGUL GUMUZ REGION

5.1.1 Shallow wells implementation experience in Oda woreda

General

In the 2008EFY only Oda Bildigilu woreda planned the drilling of 4 shallow wells (2 for communities, 1 for school and 1 for health post). At the end of the fiscal year a total of 5 shallow wells (3 for communities as one planned spring was changed to shallow well, 1 from school and 1 for health post) have been drilled and are in use. During the review and planning workshop I made a discussion with the RSU members, water bureau expert & Oda woreda CMP supervisor and the process used in the implementation of the shallow wells is summarized as follows. People contacted for the discussion are Ato Alem Tadele (COWASH coordinator from water bureau), Ato Melkamu Dibaba (RSU team leader), Ato Tilahun Abebe (RSU financial specialist) and Ato Tseteta Jirata (CMP supervisor of Oda woreda).

a) Project application

- Initially two communities, one school and one health post committee applied for the construction of water scheme (hand dug wells and spring).
- The woreda water office experts went to the sites to appraise the projects at field level. During the field appraisal the experts felt that hand dug wells and spring are not feasible technologies and recommended for shallow wells drilling.
- Due to lack of hydro-geologist in the woreda the water office requested the water bureau to assign a hydro-geologist to select the sites for the shallow wells drilling.
- The bureau assigned a hydro-geologist and the hydro-geologist selected sites for the drillings.

b) Appraisal

- Once the sites for the shallow wells have been selected, the woreda water office experts appraised the projects at field level (mainly by discussing with the community) on the different appraisal criteria.

c) Approval

- Based on the recommendations of the appraisal team the WWT approved the 4 shallow wells.

d) Training

- WASHCOs, PTA and health committee of the approved shallow wells attended the CMP management training given by the woreda WASH technical team. During the training the committees were briefed on the drilling, well head construction and pump installation of the shallow wells.

- Based on the explanation the WASHCOs, PTA and heath committee expressed that they do not have an experience in the tendering/procurement of such technology and even reported that they cannot get drilling companies to come to the woreda to drill such small number of wells. And expressed that they have an interest to delegate the WWT for contracting of the works on their behalf.

e) FA signing

- The WASHCOs, PTA and health committee signed funding agreement with the WWT chairperson.

f) Procurement Delegation

- The WASHCOs, PTA and health committee delegated the WWT in writing to contract the drilling and casing installation of the shallow wells on their behalf.
- The WASHCOs, PTA and health committee decided to handle the well head construction, hand pump procurement & installation by their won and did not delegated the WWT for these activities.
- Based on the delegation it got from the WASHCOs, PTA and health committee the WWT discussed on the issue and agreed that the woreda does not have such experience of drilling contracting and even the zone does not have such experience and gave assignment to the woreda water office to delegate the water bureau to handle the tendering and contracting of the shallow wells on behalf of the communities.

g) Tendering

- Based on the delegation it got from the Oda woreda water office the water bureau included the 5 shallow wells with 23 shallow wells (21 shallow wells by Sustainable Development Goal) and 2 shallow wells by Japan Social Development fund project ready for tender advertisement. A total of 28 shallow wells were ready for advertisement in 3 lots. The tender document clearly stated the name and location of the 4 COWASH shallow wells, stated that communities are the owners of the fund and they are the one to make payments to the company, and also stated that the drilling company is only to drill the wells and install casings which implies that well head construction, hand pump procurement and installation will be done by WASHCOs and not by the drilling company.
- Based on the tender advertised once in the Ethiopian Herald newspaper (Tender document was sold and opened in Addis Ababa) a Company named **"United Rawa Industrial Engineering PLC"** won the tender and signed the drilling contract with the water bureau separately for the 4 COWASH shallow wells.
- The bureau shared the copy of the tender analysis and contract agreement to the Oda woreda water office for filling, follow up and to refer when payment is requested by the drilling company.

h) Drilling and supervision

- The drilling of the wells started & continued.
- The water bureau assigned a hydro-geologist to supervise the drillings and the woreda assigned an engineer also for the close follow up of the drilling activities.

i) Payment to drilling company

- When the drilling and casing installation completed, the company requested payment to the water bureau.
- The drilling supervisor certifies payment requested by the company and sent the payment certificate to the woreda water office so that WASHCOs of each shallow well to approve and make payment/transfer payments to the drilling company. The name and account number of the company is stated in the payment covering letter sent from the bureau to the woreda.
- WASHCOs of each well approved the payment and transferred the approved amounts to the drilling company.
- Once received money, the drilling company sent receipt to each WASHCO to confirm that it has received the money.

j) Well head construction and pump installation

- Once the drilling and casing installation completed and confirmed by the supervising hydro-geologist, the WASHCO contracted an artisan for the construction of the well head and procured Afridev hand pump from Bambasi woreda (Bambasi woreda already contracted one supplier to supply the pump and the WASHCOs of the shallow wells procured the pumps from the supplier) and the artisan who constructed the well head installed the hand pump.
- Community contributed sand & stone for the well head construction, and contributed eucalyptus & fenced the wells.

k) Shallow well drilling cost

- Total plan for 4 shallow wells is 980,000 (Birr 245,000 per well) and total expenditure is around 564,269.98 (including 4 productive wells and one abandoned well). The total cost includes also the well head construction, and Afridev hand pump supply & installation cost of the 4 productive wells. The actual drilling cost per well is considerably less than the planned amount
- A part from somehow exaggerated planning cost, the tendering of the wells by clustering/batching with other shallow wells and the relatively shallow depth of the wells (although the budget was estimated for an average depth of 60 meters, the shallowest depth is 32 meters and the depth of the other 4 wells is in the range of 40 to 45 meters) and the construction of the well head & pump installation contracted to the artisans have contributed for the smaller cost of construction.

l) Challenges in the implementation of high techs water supply schemes using CMP approach

- WASHCOs did not participate on bidding process and this may cause losing sense of ownership,
- As the share of community contribution is by far less than 15% (the minimum amount recorded in other technologies, due to this there may be lower sense of ownership of the community.
- Different working modalities in the same kebele or area may cause a challenge in future implementation (shallow well drilling by SDG fund which uses WMP approach and by CMP approach)

m) Recommendations for the effective implementation of the technologies using the CMP approach

- Exert maximum effort to make WASHCOs be involved/participate in the bidding process (bid advisement, bid opening, bid analysis etc.) to ensure/increase sense of ownership, accountability and responsibility.
- Community contribution should be correctly calculated to know exact share in CMP approach.
- Continuous promotion and awareness rising should be made at all levels to implement CMP approach smoothly.

5.2 TIGRAY

5.2.1 General

Since 2006 EFY Tigray region has been implementing some high tech water supply schemes (shallow wells and piped schemes from deep wells). During the review and planning workshop organized on September 13-14/2016 in Mekelle I made a discussion with Ato Tesfalem Hadgo (water bureau deputy head and owner of water supply and sanitation core process), Ato Desalegn Kiros (CMP specialist) and Ato Teklay Berhanu (Degua Tembain woreda CMP supervisor) to share the experience of the region in the implementation of the technologies using the CMP approach which is summarized as follows. The report of the assessment has been commented by the RSU team leader & other specialists.

a) General information (common to all high techs)

a.1) Regional direction in high techs implementation

As per the deputy water bureau head there is no a regional direction which prohibits woredas to manage the tendering, contracting and implementation of high tech water supply schemes. The region encourages the decentralization of construction management. Woredas delegate regions by their interest and not by influence of the bureau as their experience in the implementation of high tech schemes such as well drilling and RPSs of large nature is very low. Of course in the past as the woredas water offices were under staffed in terms of technical experts (hydro-geologists and engineers) the high tech implementations were basically handled by the water bureau and woreda water offices experts. In Tigary zones are not structured to handle the implementation and assist woredas technically in the implementation of water schemes (there is only one water advisor) at the zone level and this is why if woredas lack the capacity and confidence of getting the required drillers or contractors of the rural piped schemes (RPSs) they delegate the bureau.

Leave alone woredas if they have the capacity and confidence even WASHCOs can handle the implementation of the projects as the CMP approach is well understood by the region to have so many advantages from the experience gained in hand dug wells and springs implementation.

Up to now due to lack of capacity and fear of getting the required drillers at woreda level all the 59 shallow wells drilling, 2 deep well drillings and 2 RPSs tendering, contracting & its management (including payment effecting payments) have been handled by the water bureau based on the delegation it got from the woredas which in turn got the delegation from the WASHCOs of each scheme. One of the directions of the region in phase III of the COWASH is that at least for the RPSs from gravity springs the tendering and contracting shall be handled by woredas if WASHCOs delegate and the delegation should not come to the bureau (there are already planned RPSs for 2009EFY in this manner). For this the RSU and the water bureau experts shall provide the required technical support to the woreda water offices. Concerning well drillings as there may be lack of inertest by drilling companies if drillings are tendered for small number of wells by one woreda, the bureau can handle the tendering if delegated by the woredas.

a.2) Definition of RPSs

There is no as such clearly put definition on RPS by the region; but generally RPSs are constructed based on population size and availability of water sources and in most cases they have at least two water points/public fountains.

a.3) Use of CMP high tech implementation guideline

The water bureau got the soft & hard copy of high tech implementation manual prepared by the FTAT three years ago and is using it for the implementation of the high techs. Of course the manual is not copied and given to woredas to avoid the confusion with the low tech implementation guideline.

The region uses the guideline when the need for training WASHCOs of high tech implementation especially for the two RPSs WASHCOs the CMP implementation management training was given separately as the WASHCO structure, the tariff setting procedure, the community contribution in the different components and the contracting are a little bit different from low techs. In case of the shallow wells as the management of the technology is not much different from that of the hand dug wells and on spot springs, the WASHCOs of shallow wells were trained together with the point water sources WASHCOs and during the training some more time was taken to explain the shallow well technology to the WASHCOs. It is manly after this training that WASHCOs note the difference of the high techs implementation from that of the low techs (hand dug wells and on spot springs) and decided to delegate the WWT. Community contribution and other requirements of the RPSs & shallow wells have been extracted from the guideline and included in the CMP promotion, application preparation and appraisal training to the woreda technical experts. For effective planning and implementation of the drillings & RPSs there is strong assistance from the water bureau & RSU in the site selection of wells, design of RPSs and in technical appraisals.

In short the guideline has not been physically cascaded to woredas but the important points are included in the promotion, trainings given to woreda experts and WASHCOs. During training of the RPSs WASHCOs in CMP implementation, the RSU CMP specialists were also involved as trainers & assisted woredas.

a.4) Number of high technologies implemented

- A total of 71 shallow wells (36 in 2006 and 35 in 2007) have been implemented in the 7 woredas of COWASH.
- In the 2008EFY sixty eight (68) shallow wells and 4 deep wells planned could not be drilled due to the budget constraint the region faced in connection with the drought in the region which made to allocate more budget to the drought affected areas of the region.
- 2 deep wells drilled in two woredas in the 2006EFY.
- The construction of the 2 RPSs from the deep wells were started at the end of the 2007EFY and completed in 2008EFY.

As the implementation of the shallow wells and the rural piped schemes followed almost the same procedure the report has been prepared together and presented hereunder.

The descriptions of the two RPSs implemented so far are presented hereunder.

i) Alasa RPS

- It is located in Degua Temben woreda and constructed for a semi-urban area named Alasa to serve 3,114 people.
- The scheme has a deep well source which was drilled by COWASH in the 2006FEY.
- The community contributed Birr 20,000 as upfront cash contribution for O&M.
- The scheme components constructed include supply & installation of submersible pump and generator, construction of generator house, supply & laying of a combination of 3" & 4" rising main of 2,590 meter long, 100m^3 capacity sandwich reservoir, guard houses near the reservoir and borehole, supply & laying of 5,470 meters long distribution pipe of different diameters, construction of 10 fountains (7 for community, 2 for schools & 1 for health post) and a treatment plant for sulphate minimization and/or removal which is given as an additional order).

- The cost of all the scheme components excluding the deep well drilling and the treatment plant is Birr 4,201,695.30 (this excludes community contribution).

ii) Edaga berhe RPS

- It is located in T/Maychew woreda and constructed for a semi-urban area named Edaga Berhe to serve 6,175 people.
- The scheme has a deep well source which was drilled by COWASH in the 2006FEY.
- The community contributed Birr 23,000 as upfront cash contribution for O&M.
- The scheme components constructed include supply & installation of submersible pump and generator, construction of generator house, supply & laying of rising main of 2,557 meter long, 100m^3 capacity sandwich reservoir, guard houses near the reservoir and borehole, supply & laying of 4,282 meters long distribution pipe of different diameters, construction of 9 fountains (8 for community & 1 for health post), elevated plastic water tank and a cattle trough.
- The cost of all the scheme components excluding the deep well drilling is Birr 5,788,977.90 (this excludes community contribution).

5.2.2 High tech planning and implementation experiences

a) Project application, study & design and appraisal

a.1) Application preparation & desk appraisal

- Most of the time communities came up with an application for the construction of a water point mainly for hand dug wells and in some cases specifically apply for the drilling of wells by machine especially in areas which have tried hand dug wells earlier and could not be successful due to various reasons.
- For the 2 deep wells case as the places were well known for the need of the technologies due to their semi-urban nature, communities applied for the drilling of a well in the first year (2006EFY). The RPSs were the continuation of the 2 deep wells drilled in 2006EFY.
- Once received the application the woreda water office experts appraised the applications at the desk level.

a.2) Site selection/confirmation, study & design, and filed appraisal

a.2.1) Shallow wells site selection & field appraisal

  - Woredas which have a hydro-geologist choose the sites and water office requested the bureau to confirm the site selected to minimize the chance of well abandoning. Woredas which did not have a hydro-geologist requested the bureau for the expert and selected the sites.

- Based on the request of the woredas the bureau assigned a hydro-geologist and the hydro-geologist selected or confirmed (for sites already proposed by the woreda hydro-geologist) the sites for the drillings. The field appraisal of the wells was started by the woreda water experts after they finished the desk appraisal but the field appraisal was completed in the presence of the bureau hydro-geologist once the well site was confirmed or selected by bureau expert.

a.2.2) Deep wells site selection & field appraisal

- The two wells were drilled in the 2006EFY and the construction of the RPSs was started in late 2007 and completed in 2008EFY. Like that of the shallow wells the woreda appraised the desk level and went to the site and discussed with the communities (some sort of field appraisal). During the discussion at field communities have realized that the technology is very different from the point water sources they see in other places in terms of its type, the implementation arrangement, the contribution expected from them, the management, and the tariff of the scheme and agreed on the required issues from them for the successful implementation of the projects.

- Based on the commitments of the community they got form the first field appraisals, the woredas requested the bureau for the selection of the two deep well sites, the bureau assigned hydro-geologists and chose the drilling sites.

- In the presence of the bureau hydro-geologists field appraisals of the wells from the technical points of view were completed.

a.2.3) RPSs design preparation and field appraisal

- Once the drilling of the deep wells were completed and found to be effective, upon the request of the woredas the water bureau sent design team having surveyor, engineer, environmentalist and socio economist to the sites. During surveying of pipe line routes and data collection the design team worked closely with WASHCOs, kebele administrators, kebele mangers and kebele water technicians. The socio economist collected data and discussed with the communities to assess their affordability and willingness to pay for the tariff (not as such very structured discussion), the type of community contribution and organized the possible scheme management structure. The surveying and the design data collection stage by the design teams was also used for completing the field appraisals which were started by the woreda experts before they had requested the water bureau for the design assistances.

- The water bureau design teams completed the designs and the bureau submitted to the woreda water offices. The woreda water office experts completed the field appraisal of the project by including the project cost estimate (CMP and community contribution).

- The expected tariff amount was discussed with the beneficiaries/applicant communities by referring the minimum amount of tariff being paid by users of schemes of related nature in the woredas.

a.3) Approval

- Based on the recommendations of the appraisal team the WWT approved the projects.

a.4) Trainings

- The shallow wells WASHCOs were trained in CMP management by woreda WASH technical team members together with low tech WASHCOs as many of the issues of the in shallow wells management are the same as that of point water sources.

- The RPSs' WASHCOs got a separate training by the RSU and woreda water office experts as the management is a little bit different from shallow wells and other point water sources.

- In both the trainings the possible ways of implementation and the types of construction activities to be done were briefed to the WASHCOs.

- After the CMP management training each shallow well and RPS WASHCO decided to delegate the tendering and financial management including payment effecting to the drilling company/contractor to the WWT to handle on their behalf as they feel that they do not have the technical capacity for handling the activities and difficulty to get drilling companies for their one well.

a.5) Funding Agreement (FA) signing

- The WASHCOs for community shallow wells & RPSs, PTA for school shallow wells and health committee for health post shallow wells signed funding agreement with the WWT chairperson.

b) Project implementation (procurement & contracting, construction, fund transfer & management, and supervision) stage

b.1) Tendering of works

- Except the construction materials and labor committed by communities all the other works were handled by full contracting to drilling companies for shallow wells and deep well drillings, and to private water works contractors for both RPSs.
- WASHCOs delegated the WWT to handle the tendering, contracting and payment effecting to the drilling companies/constructors to the water bureau. The WWTs delegated the water bureau to handle on its behalf by referring the delegation it got from the WASHCOs. The delegation given by WASHCOs state reasons which mostly lack of capacity and knowledge for handling the implementation of the technologies and fear of greeting the appropriate drilling company and contractor if they advertise it locally at woreda. With almost the same reasons given by WASHCOs the WWTs delegated the water bureau to handle on their behalf which they took the delegation from WASHCOs.

- The water bureau contract administration core process prepared the tender document for the works and advertised in the Addis Zemen news paper for the shallow wells and Ethiopian Herald news paper for RPSs. Usually shallow wells are tendered in batch for 2 to 3 adjacent CMP woredas depending on the number of wells planned and the time when the sites for tender are ready by woredas.
- The tender committee of the water bureau analyzed tenders and decided the winner drilling companies for drillings & water works contractors for RPSs.

b.2) Construction contract signing

- Once the winners were identified the water bureau made drilling and construction agreement with the winner drilling companies and water works contractors respectively as it got the delegation from the WWT (which in turn got delegation from WASHCOs).
- The bureau sent the copies of the respective woreda agreement (drillings and RPSs) to each woreda water offices.
- In case of the two RPSs, the woreda water offices copied the agreement and gave to the WASHCOs of each RPS.
- For shallow wells woredas kept the agreement at water offices as it is one agreement for number of wells.

b.3) Drilling or Construction Supervision

- For the 2 deep well drillings a permanent supervisor (travelling to the sites on scheduled basis) was assigned from the water bureau as they needed close follow up. In addition the woredas hydro-geologists were also supervising the drillings.
- For the shallow well drillings the main drilling supervision was given to the hydro-geologist from the water offices of each woreda.
- In the Alasa RPSs the bureau assigned responsible supervisor which was travelling to the site frequently and an engineer from the woreda water office was also conducting supervision. Whereas for the Edaga Berhe RPS supervision and payment checking was mainly/fully handled by the woreda expert. In addition one of the CMP specialists of the COWASH who is an engineer by profession has also supervised the two RPSs on scheduled basis.
- WASHCOs of each water scheme also followed the progress of each work. Especially for drillings WASHCOs were given direction to count the number of drilling pipes, the number of casings installed which were good basis for the woredas hydro-geologists in recording data of depth and approving payments.

b.4) Recording and reporting of community contribution

- In the tender document the contract administration core process of the bureau clearly stated the type of labour and materials the community committed to contribute and such items were excluded from the bill of quantity for each site.

- As WASHCOs were given training on how to record and were recording the community contribution. The hydro-geologist from the woredas and the RPSs supervisors assisted the WASHCOs in recording.

- WASHCOs estimated the community contribution but especially for the RPSs some exaggerations of unit prices have been observed by CMP specialists. In the case of Alasa RPS community and woreda estimated the community contribution to be 24%.

b.5) Payment to contractors and drilling companies

In the shallow wells, deep wells and RPSs WASHCOs delegated the WWT which in turn delegated the water bureau including the transfer of payment to the drilling companies or to contactors. The payment preparation and transfer procedures used were as follows.

b.5.1) Advance payments

- The drilling companies and contractors got the advance payment up to 30 % of the contract price after they brought the required guarantee to the water bureau.

b.5.2) Interim payment (payments other than final)

- For **shallow wells** usually the payment is made once other than the advance payment
- For **RPSs and if there is in case any interim payment to drillings**. The contractor/drilling company prepared payment certificate to the woreda water office, the water office construction supervisor/drilling supervisor certified the payment and sent to the water bureau for final approval and pay to the contractor/drilling company, the water bureau supervisor approved the payment and sent to the contract administration core process of the bureau, the core process finally re-approved the payment and passed it to the bureau finance section to transfer to the contractor/drilling company, the finance section of the bureau transferred the money from the water bureau investment fund account to the drilling company (the money did not reach to DECSI and no commission was paid), the company gave receipt to the water bureau and the bureau attached with the project file/contract agreement at the water bureau purchase, finance and logistics sub process. When the project is to be financially audited, it is the bureau not the WASHCO as many of the financial documents are at the bureau.

b.5.3) Final payment

- **For drillings.** There is a provisional acceptance form to be signed by each WASHCO which confirms that the construction of the scheme is completed and started functioning. In this case the kebele water technician and the woreda water office experts/drilling supervisor assisted the WASHCOs in checking the completion and the functionality of the scheme. The WASHCO signed on the provisional acceptance form and was approved by the kebele administrator (stamped). The acceptance form was attached with the payment certificate which was certified by the woreda drilling supervisor and approved by water bureau. The bureau transferred the final payment to the drilling company when it receives the provisional acceptance form from the kebele administration.

- **For RPSs** the same procedure applied but in the provisional acceptance in addition to the WASHCOs and the kebele water technician, the kebele administer and kebele manger attended the checking of the scheme functionality.

In both the borehole/shallow wells and RPSs cases WASHCOs did not sign in the payment certificates and signed only in the provisional acceptance forms.

c) Project operation and maintenance management stage

c.1) Scheme management

- Shallow wells have six members WASHCO as per the region proclamation.
- The RPSs management structure has six members WASHCO (Umbrella WASHCO) for the overall management of the scheme including employment of staff and many other functions. In addition each public tap has three members committee responsible for the follow up the daily functioning of each tap and also during construction for organizing the community for contributing labor and materials of the public tap users. This also follows the proper functioning of the tap attendants at its village. For the CMP management only the 6 member committee (umbrella WASHCO) was trained but for O&M issues the entire tap WASHCOs have been trained. They have by-law and each committee has its own role.
- Up to now both the shallow wells and RPSs WASHCOs have not yet been legalized as the region did not start legalization.

c.2) Tariff study

- For the RPSs the actual amount of tariff was set when the scheme is nearing to completion to give the service but the discussion on the tariff issues was started in 2006EFY when communities were applying for the deep well drilling and apprised at that time the water office experts informed the communities that such scheme tariff is highly different from point water sources tariff and it is based on cost to cover all the manpower and fuel for running the system and at that time there was commitment from almost all the community members.
- Even during appraisal of the RPSs this was also referred and even the socio economist who was the team member from the water bureau of the RPS design raised the issue and discussed with many of the users on their willingness and affordability to cover such tariff as at that time the real tariff required was not calculated. Only their commitments were re-confirmed.

c.3) Tariff decision

- Based on the information given by the woreda on the tariff experience they have in the woreda in schemes of related nature, it is the community who decided the tariff amount and was set when the construction of the scheme is nearing to completion and ready to start service.
- In Alasa case the water tariff in use is Birr 12.5 for meter cube of water and there is an intention to increase the tariff in near future. They have printed legal receipts for use by the water seller
- In Edaga Berhe RPS the initial tariff set was Birr 12.5 for meter cube of water and very recently revised to Birr 20 for a meter cube. They have not yet printed the receipts and are advised to do so by the water bureau.

c.4) Employment of operators, plumbers and tap attendants for RPSs

In Alasa (as discussed with the CMP supervisor)

- The WASHCO employed 7 tap attendants/water sellers for community taps, two generator operators (work on shift basis) and one guard. Initially the scheme has been using much from the upfront cash contributed for O&M but nowadays it is nearing to cover its monthly expenses from the tariff it collects every month.
- Plumber is not employed assuming that the scheme is new and does not need such permanent staff at this stage and if the need arises they will contract plumbers from the private sector.

c.5) O&M trainings given for the WASHCOs & employed technical staff

WASHCO in O&M and other employed staffs in their areas of responsibility have been trained by the water bureau & woreda water office experts.

d) Challenges faced

- As RPSs have different management structure and tariff required from communities which need detail discussion with all the community members, the appraisal is more detail than the point water sources which needs time to get many of the users at a time.
- Bidding document preparation, tendering and tender evaluation sometimes took time as some woredas delay to delegate the bureau for tendering.

- The implementation of such technologies especially the RPSs demand continuous and strong supervision from the region to ensure quality, to get reliable data for payment preparation and timely completion of the project as woredas & WASHCOs lack the knowledge and capacity.

e) Recommendations of the people involved in the discussion

The implementations of the high techs demand serious follow up and discussion with community and local administration.

5.3 SNNPR

5.3.1 General

In SNNP region a total of 5 shallow wells and 10 rural piped schemes have been implemented by COWASH. For this purpose the shallow well implementation experience used in Hadiya zone woredas (Duna and Misha) and the RPS experience in Duna woreda has been assessed and presented below. In order to get the regional experience in high tech implementation discussion was made with Ato Bekele Kassaye (Water Bureau WASH-PMU and COWASH coordinator).

Regional direction in high techs implementation

As per the PMU coordinator based on the Business Process Re-engineering (BPR) prepared by the region some years ago, the implementation (contracting and contract management) of high tech water supply schemes namely shallow well drillings, RPS from motorized springs and RPS from deep well sources are decided to be implemented by the water bureau due to the relatively complex nature of the schemes, the limited capacity of the zones & woredas (in terms of number of professional and technical experience in relation to the technologies) and also the need for clustering of well drillings by zones or woredas to attract drilling contractors. The woredas are given the mandate for contracting and constructing hand dug wells and springs on spot or with collection chamber. But the BPR has not been aggressively followed and as the capacity of zone water departments has been improving from time to time the bureau gave responsibility for the zones for contracting and contract management of shallow and borehole drillings, and the construction of RPSs from any source and nowadays zones are contracting and managing the contract of many high tech water projects. Even some zones such as Sidama have already given formally mandate/power to woredas having better manpower (engineers and geologists) to contract and administer the construction of high tech water supply schemes. How to formally decentralize the contracting and contract management of high tech water supply schemes to zones and woredas is one of the issues planned to be considered in the BPR which is going to be revised.

The experience of the Duna woreda in shallow wells and RPSs implementation is presented hereunder.

5.3.2 Shallow wells implementation experience in Duna woreda

Duna and Misha woredas implemented 3 and 2 shallow wells respectively in the 2008EFY and Duna woreda implemented a total of 14 RPSs in (6 in 2007EFY and 8 in 2008EFY) from gravity spring sources. Although the region report says total of 10 RPS constructed by COWASH this may be due to including some RPS in spring construction category. Out of the 14 RPSs in Duna woreda 8 are with 2 public fountains, 5 are with 3 public fountains and one with 4 public fountains. To share the experience of the implementation of the technologies from Duna woreda I made a telephone discussion with Ato Tadios Lera (woreda water office head) and Ato Amanuel Handiso (the former CMP supervisor and presently working as the woreda advisor). Duna is one of the COWASH woredas in SNNPR and located 277Kms from Addis.

a) Project application

- The communities & institutions were promoted by the woreda experts on the possibility of shallow well as one technology eligible for financing by the COWASH project (CMP approach).
- As the two communities where the shallow wells implemented have low yielding hand dug wells and there is no springs close by and also the school did not have a water

point. After promotion communities and the school requested in writing for well drilling by machine together with an upfront cash contribution of Birr 2,000 each.

- The woreda water office appraised the applications at desk level and recommended for field appraisal.
- The woreda water office experts went to the sites to appraise the projects at field level. During the field appraisal the experts understood the willingness of communities & the school and recommended for shallow wells drilling as requested.
- The water office requested the zone water department and bureau to select sites for the wells. The RSU CMP specialist and the zone hydro-geologists selected the sites. The geologist of the woreda (who is almost fresh) also participated in the site selection to gain experience.

b) Appraisal

- Once the sites for the shallow wells have been selected, the woreda water office experts went to the communities & the school again and completed the field appraisal.

c) Approval

- Based on the recommendations of the appraisal team the WWT approved the 3 shallow wells.

d) Training

- WASHCOs & PTA of the approved shallow wells attended the CMP management training given by the woreda WASH technical team together with WASHCOs of low tech schemes. During the training the WASHCOs & PTA were briefed on the drilling, well head construction and pump installation of the shallow wells.
- Based on the explanation the WASHCOs & PTA expressed that they do not have an experience in the tendering/procurement of such technology and expressed that they have an interest to delegate the WWT for contracting of the works on their behalf.

e) FA signing

- The WASHCOs & PTA signed funding agreement with the WWT chairperson.

f) Procurement Delegation

- The WASHCOs & PTA delegated the WWT in writing to contract the drilling and construction of the shallow wells on their behalf (including the well head construction and hand pump installation).
- Based on the delegation it got from the WASHCOs the WWT discussed on the issue and gave assignment to the woreda water office to delegate the zone water department to handle the tendering and contracting of the shallow wells on behalf of the communities and school.

g) Tendering

- Based on the delegation it got from the Duna and Misha woredas the Hadiya zone water department prepared the tender document for the drilling of the 6 shallow wells (bill of quantities and the location of each well). In the tender document it was stated that communities/WASHCOs are the owners of the fund and they are the one to make payments to the company.
- The department advertised the Tender in the Ethiopian Herald newspaper, tender opened and analyzed by the department tender committee.
- The department signed a contract agreement for each woreda with the winner drilling company **"United Rawa Industrial Engineering PLC"**.
- The department shared the copy of contract agreement to each woreda water office for filling, follow up and to refer when payment is requested by the drilling company.
- The agreement retained/filed at the woreda and not copied to WASHCOs.

h) Drilling and supervision

- Each site was handed over to the drilling company by the hydro-geologist of the zone and the geologist of the woreda who participated in the site selection.
- The zone water department assigned a hydro-geologist to supervise the drillings & certify payments and the geologist from the woreda (who is almost fresh) was also given an assignment for the close follow up of the drilling activities.

i) Payment to drilling company

Advance payment

- The company submitted a bank guarantee to the zone water department for the 20% advance to be given to it as put in the contract agreement document.
- Based on the agreement it signed the department wrote a letter to the woreda water office so that each WASHCO & PTA to give an advance payment amounting 20% of the contact amount to the drilling company by stating the Account No. of the company.
- The woreda water office informed WASHCO & PTA of each well on the amount to be advanced to the drilling company by referring the contract agreement and the letter written by the zone water department.
- The woreda water office discussed & agreed with Omo Micro Finance Institution (OMFI) that each WASHCO & PTA to withdraw the amount to be advanced to the company from the OMFI account at Commercial Bank of Ethiopia (CBE) Duna branch, the drilling company account is also located in CBE
- Each WASHCO & PTA transferred the advance to the drilling company from OMFI CBE at Duna to the drilling company account at CBE without withdrawing cash from the OMFI

account which is very good and cancelled the risk of WASHCOs & PTA carrying too much cash in their hand.

- The drilling company gave a receipt to each WASHCO & PTA for the amount it received (as it was clearly stated in the contract agreement).

Other payments

- Other than the advance payment, payment to the drilling company was made once as the drilling, well head construction and pump installation were completed within short period of time (this was also the condition put in the contract agreement).
- When the drilling and construction of the wells is completed the drilling company requested payment to the zone water department.
- The drilling supervisor from the department certified payment requested by the company and sent the payment certificate to the woreda water office with a covering letter so that WASHCOs of each shallow well to approve and make payment/transfer payments to the drilling company. The name and account number of the company is also stated in the payment covering letter sent from the bureau to the woreda.
- WASHCOs & PTA of each well approved the payment based on the explanation given by the CMP supervisor and the woreda water office geologist who was also following up the drillings, like that of the procedure used to transfer the advance payment to the drilling company each WASHCO & PTA transferred the approved payment amount to the drilling company from the OMFI account at CBE Duna branch to the CBE account of the drilling company.
- Once received money, the drilling company gave receipt to each WASHCO & PTA to confirm that it has received the money.
- Each WASHCO & PTA settled the financial documents like that of any low tech schemes to the woreda water office. The original financial documents are at the woreda water office and the copy is kept with each WASHCO & PTA.

j) Well head construction pump installation and community contribution

- The contract for the drilling, casing installation, well head construction and pump installation has been awarded to the drilling company.
- Community constructed access road to the rigs, prepared accommodation for the drilling crew, contributed wood and fenced the wells.

k) Shallow well drilling cost

- The drilled depth of one well was 70 meters and the depths of the two wells were each 72 meters. Although the planned budget was Birr 240,000, the actual drilling cost varies between wells and the maximum was Birr 220,000 excluding community contribution.

l) Recommendations for improvement

The financing of the shallow wells has to continue as there are communities and instructions needing the technology.

5.3.3 RPS implementation experience in Duna Woreda

a) Project application

- These communities like other communities in the woreda were promoted about the CMP approach.
- Based on the promotion communities applied for the construction of the spring existing in their locality.
- The water office experts have appraised the project at desk level and recommended for field appraisal.
- During the first field appraisal water office experts made some sort of field appraisal and learned that the schemes need designs.

b) Study and designs

- The water engineer, other technical experts in the woreda water office and the woreda CMP advisor prepared the designs of the schemes (all the RPSs are gravity spring sources having a collection chamber of 4mcu, having a pipe length ranging from 1.5Kms to 2.9 Kms and the number of public fountains ranges from 2 to 4). The experts used GPS for reading elevations and made hydraulic calculations to see the pressures/head in the pipe system. Due to shortage of surveying instruments such as levelling, theodolite or total station & surveyor and also the higher locations of the spring sources as compared to the settlement of the communities which was obvious that the water from the sources flows by gravity they used only GPS for reading elevations.
- During the designs data collection and deciding the location of public fountains, they have organized a 5 member WASHCO for each public fountain (for example for a scheme with 3 public fountains, they organized 3 WASHCOs each with 5 members). But now they are revising it as per the region WASHCO legalization structure for RPSs, i.e. to have 2 members public fountain sub-committee which then from one WASHCO for the RPSs (the 2 members from each public fountain will form the general assembly of the RPS WASHCO and some of them shall be elected as WASHCO/executive committee members of the RPS).

c) Appraisal

- Once the designs were completed, the water office experts went again to the applicant communities and finalized the field appraisal.
- Each RPS contributed upfront cash for O&M which amount is decided by seeing one public fountain as one water point. Based on this users of one public fountain

contributed Birr 2,000 like that of a hand dug well or a springs which implies than an RPS having 3 public fountains contributed a total of Birr 6,000 as an upfront cash for O&M.

d) Approval

- Based on the recommendations of the appraisal team the WWT approved the projects.
- Each public fountain was approved as one project. The responsibility for managing the implementation and the construction cost of the spring capping structure was given to the community/public fountain users close to the spring eye/capping structure and the cost of the responsibility of implementation of the collection chamber was given/approved in the cost of the public fount users close to the collection chamber.

e) Training

- The WASHCOs of the approved RPSs attended the CMP management training together with other water point WASHCOs and more briefing on the projects were given to the RPSs WASHCOs. As the number of such schemes ready for one round training and also the implementation arrangements for the RPS was almost the same as springs, it was fund not practical to train the RPSs WASHCOs alone.
- Based on the explanation the WASHCOs expressed that they can handle the implementation of the projects by their own if they get strong technical support from the water office.

f) FA signing

- The WASHCOs signed funding agreement with the WWT chairperson.
- Each public fountain WASHCO signed the funding agreement with the WWT chairperson.
- OMFI opened an account/ledger for each public fountain WASHCO.

g) Tendering & contracting

Each WASHCO managed the implementation of the project by itself by giving labor contract to artisans and procuring construction materials and tools by itself like that of hand dug wells and springs implementation. The details of the labor contracting and procurement are shown below.

g.1) Artisans labor contracting

There are many trained artisans in the woreda by the project which have been implementing hand dug wells and springs. In 2008EFY a strong direction came from the woreda finance office that all the construction activities have to be given to licensed contractors and /or MSEs on competitive/bidding manner like the way it is tendering and contracting the implementation of water schemes financed by the government and other donors. If this is followed it can make the trained artisans jobless. After frequent discussion at the WWT, the WWT decided as a government direction artisans either have to have license by their own or organize themselves in to Micro & Small Enterprises (MSEs) and have license and this work to be done strongly by the water office and woreda MSE office and till that (for 2008EFY) the artisans to be given contract for implementations. Based on that the water office selected artisans having better performance in the implementation of springs and collection chamber to awarded contract for RPSs. The water office collected price data from the woreda finance office which tendered & contracted water works of government and other budget sources. The water office brought the selected artisans and the WASHCOs of each RPS together to negotiate for the works taking the price it got from finance office as a limit/indicative price for negotiation. Based on that each artisan and the WASHCO reached in an agreement with a mediation of the water and finance office experts. Then each WASHCO signed a labor contract agreement with each artisan. Side by side in 2008EFY the woreda water office together with the woreda MSE office organized artisans into MSEs by grouping them based on their interest and onwards the implementation of water schemes will be only by licensed private contractors and MSEs.

Each public fountain WASHCO signed the construction agreement with each artisan selected by it.

g.2) Procurement of construction materials & tools

Like that of hand dug wells and on spot springs, WASHCO of each RPS procured the construction materials and tools required for the works using the WASHCO procurement guideline. Depending on their availability the materials are procured from the woreda capital and also from the zonal capital (Hosana town) located 45Kms from the woreda capital. For each procurement WASHCO made payments to the supplier, took receipts and settled at the water office. The water office experts assisted the WASHCOs in studying the unit prices of items procured in the woreda and zonal capitals so that WASHCOs to withdraw reasonable amount of money from the OMFI and also assisted in checking the quality of construction materials focusing much on reinforcement bars and different diameter pipes & fittings.

Each public fountain WASHCO procured the construction material for the fountain and other structures (spring capping structure and collection chamber) which is responsible for.

h) Construction supervision

The woreda water office engineer, other relevant experts of the water office and the woreda CMP advisor were assigned as supervisors of the construction work. Sometimes they were also getting construction supervision support from the zone and RSU.

i) Payment to artisans

Advance payment

- No advance payment given to artisans.

Payments other than advance

- When the work reaches for payment as per the agreement the woreda water engineer and the woreda CMP advisor prepared payment certificates (although it was expected that artisans to prepare but due to capacity problem the woreda experts prepared), the artisans signed as a perpetrator of the payment, the supervisor certified the payment and WASHCO chairperson approved the payment based on the explanation given by the supervisor.
- Once the WASHCO approved the payment it withdrew the money from its account at OMFI and paid to the artisans.
- As the artisans did not have printed receipts, they signed the CMP format prepared to be used as receipt for procurement which could not supported by receipts.

j) Community contribution and recording

- Each public fountain WASHCO was responsible for coordinating the households under it to contribute the labor and construction materials required from it. The community contributed in the digging of trench for pipe laying and backfilling above pipes once laid, supplied stone, supplied wood and fenced the spring capping structure, collection chamber and public fountains. The community contribution of each RPS is more than 20% of the total construction cost.

k) RPS cost

- The CMP contribution/grant for the construction of the majority of RPSs is close to Birr 200,000 (excluding community contribution).

l) O&M arrangement

- All the WASHCOs of RPSs which construction completed in the 2007EFY and some that construction completed in the 2008EFY have been trained in operation and maintenance management of the scheme.
- In addition care takers have been trained for those schemes in which the WASHCOs are trained in O&M.
- Each public fountain WASHCO employed a guard.
- Tariff has been set for each RPS. The tariff set is not in volumetric basis but it is a flat rate tariff like point water sources (on spot springs and hand dug wells). The tariff amount ranges Birr 2-3 per household per month and is collected by the WASHCOs of each public fountain.

m) Challenges

- Lack of surveying equipment and surveyor in the woreda to prepare designs for relatively large RPSs.

- Difficulty of contracting non-licensed artisans for the construction of water points in general and RPSs in particular.
- Difficulty in transporting construction materials due to the difficult nature of the terrains where the RPSs are constructed.
- Due to its long pipe lengths to be laid, the wide nature of the construction activities/components as compared to the point water sources (hand dug wells and on spot springs), coordinating community contribution in RPS is somehow difficult and needs highly committed WASHCOs.

n) Recommendations

More focus has to be given for financing such schemes as they are bringing the service closer to the community as compared to spring on spot and hand dug wells.

5.4 AMHARA

5.4.1 General

Since 2006EFY Amhara region has been implementing high tech water supply schemes (shallow wells and piped schemes from gravity springs). On November 15 & 16/2017 I made a discussion with Ato Yimer Habtie (water bureau deputy head and COWASH director), Ato Abrham Kebede (RSU team leader & CMP specialist), Ato Mulatu Ferede (zonal advisor), Ato Muluneh Abeje (zonal advisor), and Ato Addisu Fente (zonal advisor) to share the experience of the region in the implementation of the technologies using the CMP approach which is summarized as follows.

a) General information (common to all high techs)

a.1) Regional direction in high techs implementation

As per the deputy water bureau head in principle the region encourages the decentralization of construction management even down to the kebele level. But based on the Business Process Re-engineering (BPR) prepared by the region some years ago, the implementation (contracting and contract management) of high tech water supply schemes namely shallow well drillings, RPS from motorized springs and RPS from deep well sources are decided to be implemented by the water bureau due to the relatively complex nature of the schemes, the limited capacity of the zones & woredas (in terms of number of professional and technical experience in relation to the technologies) and also the need for clustering of well drillings by zone or number of zones to attract drilling contractors. Depending on their size the construction of RPSs from gravity springs can be handled by woreda water offices. Nowadays due the availability of more technical staffs at woreda water offices (engineers and hydro-geologists), the possibility of decentralizing the implementations management of high techs more to the woredas can be seen by building the capacity of the woreda staffs which need technical and financial support from different projects and programmes. Some woredas have already started the construction supervision of well drillings and RPSs with the support of zone water department experts. The bureau tried to test the decentralization of RPSs contracting and contract management to zones but some zones were found to be ineffective in managing the contract.

a.2) Definition of RPSs

As per the deputy head at present the bureau is preparing a guideline how to calculate water supply coverage and also number of users by different water supply technologies for planning purpose which may need also to re-consider the definition of the RPS. Up to now the definition in use by the bureau is that RPSs are piped schemes having a minimum of 1.5Kms pipe length and having at least two public fountains (the 1.5km is assumed that one of the public fountains be located close to the source and the other one at a distance of 1.5Km as this was the maximum radius of the beneficiary from the distribution point in the GTP I standard).

a.3) Use of CMP high tech implementation guideline

The RSU got the soft & hard copy of high tech implementation manual prepared by the FTAT three years ago and is using it for the implementation of the high techs. Of course the manual is not copied and given to woredas to avoid the confusion with the low tech implementation guideline.

The zonal advisors used the guideline when assisting woredas in the training of WASHCOs of high tech implementation management. In short the guideline has not been physically cascaded to woredas but the important points are included in the trainings to be given to woreda experts and WASHCOs. .

The experience in the implementation of the shallow wells and RPS from gravity springs are summarized here under.

5.4.2 Experience in shallow well implementation

A total of 46 shallow wells (13 in 2006, 29 in 2007 and 4 in 2008) for community use have been implemented. Except very small number of shallow wells abandoned during drilling, all the planed shallow wells have been drilled and are in use. In the 2008EFY eight shallow wells could not be drilled by the Amhara drilling enterprise due to the work load of the enterprise in the fiscal year.

The experience in the implementation of the shallow wells is summarized here under.

a) Project application

- The communities and institutions were promoted by the woreda experts on the possibility of shallow well as one technology eligible for financing by the COWASH project (CMP approach).
- After promotion some of the communities and institutions submitted application for the water office by stating the need for machine drilled wells especially those where hand

dug wells have been tried and failed and the others applied only by stating they need for water project/scheme. All the applications were submitted with an upfront cash constitution for O&M not less than that of a hand dug well.

- The woreda water office appraised the applications at desk level and recommended for field appraisal.
- The woreda water office experts went to the sites to appraise the projects at field level. During the field appraisal the experts understood the willingness of communities & the institutions and recommended for shallow wells drilling as requested.
- The woreda water offices requested the zone water departments and bureau to select sites for the wells. In some woredas the hydro-geologist form the zone water departments and in other woredas the hydro-geologists from water bureau selected the sites. In woredas where there are geologists, they also participated in the site selection to gain experience.

b) Appraisal

- Once the sites for the shallow wells have been selected, the woreda water office experts went to the communities & institutions again and completed the field appraisal.

c) Approval

- Based on the recommendations of the appraisal team the each WWT approved the shallow wells.

d) Training

- WASHCOs of the approved shallow wells attended the CMP management training given by the woreda WASH technical team together with WASHCOs of low tech schemes. During the training the WASHCOs were briefed on the drilling, well head construction and pump installation of the shallow wells.
- In the majority of the shallow wells Based on the explanation the WASHCOs expressed that they do not have an experience in the tendering/procurement of such technology and expressed that they have an interest to delegate the WWT for contracting of the works on their behalf. But in very rare cases once the sites have been selected by the bureau and the wells have been approved by WWT the woreda water office can delegate the bureau to include the well in the tender document ready for tender and the WASHCOs delegate the WWT when they sign FA and take the CMP management training. Otherwise if we are waiting the WASHCOs to take the training and delegate the WWT and then the WWT to delegate the bureau may take time and some shallow wells may not be drilled in the planned year.

e) FA signing

- The WASHCOs signed funding agreement with each WWT chairperson.

f) Procurement Delegation

- The WASHCOs delegated the WWT in writing to contract the drilling and casing installation of the shallow wells on their behalf. The procurement of hand pump & its installation and the construction of the well head are planned to be handle by WASHCOs and are not included in the delegation.
- Based on the delegation it got from the WASHCOs the WWT discussed on the issue and gave assignment to the woreda water office to delegate the water bureau to handle the tendering and contracting of the shallow wells on behalf of the communities and institutions.

g) Tendering

- Based on the delegation the water bureau got from the different woredas of COWASH it prepared tender document for advertisement. As the number of shallow wells planned per woreda was very small clustering of wells for tendering was necessary for economics of scale to attract drilling companies to tender. So the wells in the COWASH woredas were clustered in two lots by combining/clustering shallow wells from woredas of adjacent zones. Of course in the tender the name of the project, the location and bill of quantity of each well was clearly stated.
- The bureau advertised the Tender in the Ethiopian Herald newspaper, tender opened and analyzed by the bureau tender committee.
- The Financial Management Specialist and the Capacity Building specialist of the RSU attended the tender opening and analyses together with the tender committee of the water bureau.
- The bureau signed a contract agreement for each woreda with the winner drilling company.
- The contract agreement is kept in the water bureau and not shred to woreda water offices.

h) Drilling and supervision

- The supervision for the drilling and well head construction was made by woreda geologists when either exists. There were also many cases where the hydro-geologist from zone and the bureau conducted drilling supervision.

i) Payment to drilling company

- There was no advance payment paid to the drilling company and payment to the drilling company was made once when the drilling and casing installation were completed and when the productivity or abandonment of a well is certified by the drilling supervisor.
- After the productivity of abandonment of the well is certified by the supervisor the drilling company prepared & requested payment of each well to the water bureau with a very detailed well drilling report which I saw one copy of the report in the RSU office.

- The water bureau hydro-geologist checks the payment with the drilling data collected during supervision and with the contract agreement and certifies the payment. The water bureau water supply process owner approved the payment to be paid to the drilling company.

- The bureau sent the approved payment certificate to the woreda water office with a covering letter so that WASHCO of each shallow well to make payment/transfer payments to the drilling company. The name and account number of the company is also stated in the payment covering letter sent from the bureau to the woreda water office.

- WASHCO of each well based on the explanation given by the CMP supervisor and the woreda water office geologist if any to transfer the payment to the drilling company, withdrew money from ACSI sub branch and transferred to the drilling company account. Before effecting/transferring the net payment to the drilling company, WASHCOs deducted the 2% withholding tax and paid to the woreda revenue authority and sent the original withholding tax receipt to the drilling company.

- Once received money, the drilling company gave receipt to each WASHCO to confirm that it has received the money.

- Each WASHCO settled the financial documents like that of any low tech schemes to the woreda water office. The original financial documents are at the woreda water office and the copy is kept with each WASHCO.

j) Well head construction and pump installation

- The contract given to the drilling company only includes the drilling and casing installation.

- The procurement of hand pump and materials for well head construction was made by WASHCOs. The installation of the hand pump and well head construction was handled by artisans contracted by WASHCOs.

k) Community contribution and its recording

- As WASHCOs were given training on how to record and they recorded/tried to record the community contribution (the quality of the record varies from site to site). The hydro-geologists/CMP supervisors from the woredas also assisted when going for supervision.

- Community constructed access road to the rigs, contributed stone; WASHCO followed up the daily progress, contributed wood and fenced the wells.

l) WASHCO training in O&M and employment of O&M staff such as plumbers, water sellers

- WASHCOs have taken O & M training

m) Shallow well drilling cost

Although the planned drilling cost of one well of target depth was Birr 240,000, the average tender price for one well was Birr 200,000 but the actual cost various from site to site.

n) Challenges faced

- There had been resistance by some WASHCO to effect payments of abandoned wells to the drilling companies.
- Withholding the 2% withholding tax from the payment to the drilling company by WASHCOs and sending the receipt to the drilling company was a challenge.
- Constructing of well heads by the drilling company without getting order from the client.

o) Recommendations for improvement

- There is a need for clearly stating in the funding agreement and/or need for preparing some MoU which clearly enforces WASHCOs to easily pay the cost of abandoned wells to the drilling companies if certified by the expert responsible for supervision Or
- If the drilling contracting is handled by the water bureau upon delegation by the WWT, retaining the drilling budget at the water bureau account and effecting the payment to the drilling company from the bureau upon joint approval of the WASHCO with the water bureau. If some WASHCOs are not willing to effect payments of abandoned wells which are abandoned due to natural conditions (quantity & quality of water) there should be mandate by the bureau to effect payments to the drilling companies otherwise it may cause unnecessary dispute between the contracting parties (the bureau and the drilling company).

5.4.3 Experience in Rural Piped Schemes (RPSs) implementation

The construction of the 55 new RPSs (at least having 2 public fountains) from gravity springs (8 in 2007 & 47 in 2008) and 2 piped expansions/extensions from existing sources have been constructed in 2008EFY.

The description of some of the large RPSs is summarized as follows.

i) Dekuna RPS

- It is located in Ankesha woreda constructed to benefit a present population of 3200 people.
- The community contributed Birr 1,200 as upfront cash contribution for O&M.
- The source is a gravity spring. A part from other components the scheme has a total pipe length of 1.8Kms and 6 public fountains/taps.

- The total cost of the project is Birr 664,000 (of which Birr 531,200 is the grant and Birr 132,800 is the community contribution for construction which accounts 20% of the total cost.

ii) Sedesto RPS

- It is located in Antsokia Gemza woreda constructed to benefit a present population of 2,460 people.
- The community contributed Birr 1,000 as upfront cash contribution for O&M.
- The source is a gravity spring. A part from other components the scheme has a total pipe length of 5Kms and 10 public fountains/taps.
- The total cost of the project is Birr 1,167,557.00 (of which Birr 847.201.00 is the grant and Birr 302,356 is the community contribution for construction which accounts 27.43% of the total cost). There are some finishing works which need additional Birr 50,590.00 to be completed fully.

iii) Yibsana RPS

- It is located in Enebsie Sarmidir woreda constructed to benefit a present population of 1,189 people.
- The community contributed Birr 80,000 as upfront cash contribution for O&M.
- The source is a gravity spring. A part from other components the scheme has a total pipe length of 3.2Kms and 5 public fountains/taps.
- The total cost of the project is Birr 1,974,872 of which Birr 1,344,872 is the grant and Birr 630,000 is the community contribution for construction which accounts 31.9% of the total cost.

5.4.3.1 The experience in the implementation of the RPSs is summarized here under.

a) Project application

- These communities like other communities in the woreda were promoted about the CMP approach.
- Based on the promotion many communities applied for the construction of the spring existing in their locality and 2 applied an extension/expansion project from existing RPSs.
- The water office experts have appraised the project at desk level and recommended for field appraisal.
- During the first field appraisal water office experts made some sort of field appraisal and learned that the schemes need designs.

b) Study and designs

- In some woredas the water office experts and in other woredas the zone water office experts have conducted the study and design of the RPSs. Due to shortage of surveying equipments the woreda water experts used GPS for reading elevations.
- WASHCOs/community representatives worked closely with the study & design team members during the design data collection and deciding the location of public fountains.

c) Appraisal

- Once the designs were completed, the water office experts went again to the applicant communities and finalized the field appraisal.

d) Approval

- Based on the recommendations of the appraisal team the WWT approved the projects.

e) Training

- The WASHCOs of the approved RPSs attended the CMP management training together with other water point WASHCOs and more briefing on the projects were been given to the RPS WASHCOs. As the number of such schemes ready for one round training and also the implementation arrangements for the RPS was almost the same as springs, it was fund not practical to train the RPSs WASHCOs alone.
- Based on the explanation the WASHCOs expressed that they can handle the implementation of the projects by their own if they get support from the woreda.

f) FA signing

- Each RPS WASHCO signed funding agreement with the each WWT chairperson.
- Each ACSI sub branch opened an account/ledger for each RPS WASHCO.

g) Procurement Delegation

- The WASHCOs performed the implementation by itself and did not delegate anybody.

h) Tendering & contracting

Each WASHCO managed the implementation of the project by itself by giving labor contract to artisans and procuring construction materials and tools by itself like that of hand dug wells and springs implementation. The details of the labor contracting and procurement are shown below.

g.1) Artisans labor contracting

There are many trained artisans in the woredas by the then RWSEP and the COWASH project which have been implementing hand dug wells, springs and even some RPSs. The RSU and the water bureau prepared a flat rate artisans labor contract/payment guideline for use in the implementation of hand dug wells, springs and gravity rural piped schemes and the bureau sent formally to the COWASH woredas water offices. Depending on their performance in point water sources, past experience in piped schemes construction and also good record of working with communities, the woreda water offices selected number of artisans to be contracted for the works depending on the size of the RPS & their location. Each WASHCO signed labor contract agreement with the assigned artisan/s (the number of artisans contracted per RPS rangers from 1 to 3 depending on the size and location of the RPS) using the flat rate contract/payment guideline prepared by the bureau & sent to woredas for use.

g.2) Procurement of construction materials & tools

Like that of hand dug wells and on spot springs, WASHCO of each RPS procured the construction materials and tools required for the works using the WASHCO procurement guideline. Depending on their availability the materials are procured from the woreda capital, zonal capitals and even some WASHCOs procured from the regional capital (Bahir Dar). For each procurement WASHCO made payments to the supplier, took receipts and settled at the water office. The water office experts assisted the WASHCOs in studying the unit prices of items procured in the woreda and zonal capitals so that WASHCOs to withdraw reasonable amount of money from the ACSI sub branches and also assisted in checking the quality of construction materials procured focusing much in different diameter pipes & fittings.

i) Construction supervision

The main supervision responsibility was shouldered in the engineers in the woreda water offices but zone water departments' engineers were also making some supervision. The COWASH zonal advisors of the respective woredas did take part in the supervision.

j) Payment to artisans

- When the work reaches for payment as per the agreement the woreda water engineer and the woreda CMP advisor prepared payment certificates (although it was expected that artisans to prepare but due to capacity problem the woreda experts prepared), the artisans signed as a perpetrator of the payment, the supervisor certified the payment and WASHCO chairperson approved the payment based on the explanation given by the supervisor.
- Once the WASHCO approved the payment it withdrew the money from its account at ACSI and paid to the artisan/s.
- As the artisan/s did not have printed receipts, they signed the CMP format prepared to be used as receipt for procurement which could not supported by receipts.

k) Community contribution and recording

- Each public fountain WASHCO was responsible for coordinating the households under it to contribute the labor and construction materials required from it. The community contributed in the digging of trench for pipe laying and backfilling above pipes once laid, supplied stone, supplied wood and fenced the spring capping structure, collection chamber and public fountains. The community contribution is more than 20% and in many cases close to 30% (which is the minimum as per the water bureau direction) of the total construction cost.

l) RPS cost

- The cost of the RPSs vary from place to place but one thing are sure is that the construction cost of the RPSs was by far less than the costs estimated by the design teams from woredas and zones due to the use of labor contracting for artisan/s and also WASHCO handling the procurement of construction materials by their own which minimized the overhead and profit margins/costs included in cost estimation of the designs.

m) O&M arrangement

- All the WASHCOs of RPSs have been trained in operation and maintenance management of the scheme.
- Care takers have been trained for each RPS. As the schemes are new and assuming that the water office will assist them when there is a need for maintenance of pipes and fittings, they have not yet employed plumbers.
- Each RPS WASHCO employed a guard for each public fountain.
- Flat rare tariff has been set for each RPS. In future the possibility of collecting tariff on usage/volumetric basis shall be seen especially in the bigger systems.

n) Challenges

- There has been complains by the artisans on some of the flat/fixed rate labor unit prices (unit prices in the artisans payment guideline) for the construction activities set by the bureau.
- Many woredas lack design capacity (surveying instruments and technical capacity) of RPSs which need support from zones which sometimes take time to get the support of zones in design timely

o) Recommendations for improvement

- Labour unit prices need to be updated at least every 2 years based on market labour price.
- The support being provided to woredas by the zone experts has to continue so that the capacities of the woreda experts in study, design and supervision be build. The water bureau also has to see manses to give training to the woreda experts in the study and design of piped schemes using the manual in use by the bureau and also to build the physical capacity of the woreda water offices by supporting the procurement of surveying equipment.

5.5 OROMIA

5.5.1 General

In Oromia region a total of 31 shallow wells (25 for communities, 3 for schools and 3 for health posts) and 3 rural piped schemes have been implemented by COWASH. The shallow well implementation arrangement varies from woreda to woreda and is summarized as follows.

- In South West Shoa zone woredas (Tole and Kersa Malima), in Jimma zone woredas (Kersa, Gumay and Nono Benja) WASHCOs delegated WWT, then WWT by the woreda water office delegated zones and the zone water departments handled the tendering and contracting of the drilling works.
- In North Shoa zone woredas (Jidda and Abichu Gena) communities delegated WWT and by the decision of the WWT woreda water offices handled the tendering and contracts were signed by each WASHCO.

The region level discussion was made with Ato Melkamu Dalju, RSU team leader. In Oromia the BPR decentralizes site selection, study & design, contracting and contract management of shallow wells and piped schemes to zones as far as they have the hydro-geologists and engineers which can handle the works.

5.5.2 Shallow Well Drilling Experience in Jimma Zone Woredas

In the 2008EFY Kersa, Gumay and Nono Benja woredas of Jimma zone planned the drilling of 4, 6 and 4 shallow wells respectively. At the end of the fiscal year Kersa implemented 5 (4 community & 1 school), Gumay implemented 4 (one community well and one school well have been abandoned at a depth of 78 & 84 meters respectively) and Nono Benja implemented 3 (one well rolled over to 2009EFY as it was not accessible due to the rainy season). To share the experience of the implementation of the shallow wells I made a discussion with Ato Hussen Mohommed (COWASH focal person from Jimma zone water department), Ato Mohommed Awel (CMP supervisor of Gumay woreda), Ato Wondemagen, education office focal person (as there is one school shallow well) and Ato Gedlu Sima (managing director of KEY Engineering PLC, the drilling company which won the tender and drilled the wells in the three woredas). As I was informed by the zonal COWASH focal person form the zone water office (and also the discussion I made with Ato Sintayehu, Nono Benja woreda CMP supervisor) the approach used by the three woredas of the zone was more or less the same detail woreda experience was assessed only in Gumay woreda.

a) Project application

- Initially number of communities, one school and one health post committee applied for the construction of hand dug wells.
- The woreda water office experts went to the sites to appraise the projects at field level. During the field appraisal the experts felt that in 4 communities, one school and one

health post hand dug wells are not feasible technologies and recommended for shallow wells drilling.

- Due to lack of hydro-geologist in the woreda the Jimma zone water department to assign a hydro-geologist to select the sites for the shallow wells drilling.
- The department assigned a hydro-geologist and the hydro-geologist selected sites for the drillings.

b) Appraisal

- Once the sites for the shallow wells have been selected, the woreda water office experts appraised the projects at field level (mainly by discussing with the community, school administration and health post committee) on the different appraisal criteria.

c) Approval

- Based on the recommendations of the appraisal team the WWT approved the 6 shallow wells.

d) Training

- WASHCOs, PTA and health committee of the approved shallow wells attended the CMP management training given by the woreda WASH technical team. During the training the committees were briefed on the drilling, well head construction and pump installation of the shallow wells.
- Based on the explanation the WASHCOs, PTA and heath committee expressed that they do not have an experience in the tendering/procurement of such technology and expressed that they have an interest to delegate the WWT for contracting of the works on their behalf.

e) FA signing

- The WASHCOs, PTA and health committee signed funding agreement with the WWT chairperson.

f) Procurement Delegation

- The WASHCOs, PTA and health committee delegated the WWT in writing to contract the drilling and construction of the shallow wells on their behalf (including the well head construction and hand pump installation).
- Based on the delegation it got from the WASHCOs, PTA and health committee the WWT discussed on the issue, minuted the discussion and agreed that the woreda does not have such experience of drilling contracting and gave assignment to the woreda water office to delegate the zone water department to handle the tendering and contracting of the shallow wells on behalf of the communities.

g) Tendering

- Based on the delegation it got from the three woredas the zone water department prepared the tender document for the drilling of the 14 wells (bill of quantities prepared for each woreda wells including the location of each well). In the tender document & also in the tender advertisement it was stated that communities are the owners of the fund and they are the one to approve & make payments to the company
- The department advertised the Ethiopian Herald twice but only the same one bidder bought the document in both the first and second advertisement. When the tender was to be advertised for the third time the Nono Benja woreda added 10 wells from the woreda budget (Woreda Managed Project) to be the part of the Tender and the total number of wells in the third advertisement became 24.
- In the third tender advertised four drilling companies competed for the work and a company named **"KEY Engineering PLC"** won the tender and signed the drilling contract with the zone water department separately for each woreda shallow wells. The tender document was sold; tender was opened and analyzed in Jimma. A bid bond of 1% of the tender price in the name of the Jimma zone water department was the one of the requirements. The tender was analyzed by the zone project committee (a committee organized by the zone for tendering and construction activities in the zone).
- The company brought a 10% of the contract price as a performance security in the name of the Jimma zone water department and signed the drilling agreement.
- The department shared the copy of contract agreement to each woreda water office for filling, follow up and to refer when payment is requested by the drilling company.
- Each woreda water office copied the priced bill of quantity of each well and gave to the respective WASHCO for filing & refers for payment approval.

h) Drilling and supervision

- Each site was handed over to the drilling company by the hydro-geologist of the zone who selected sites and the CMP supervisor of each woreda.
- The drilling of the wells started & continued (the first drillings were done in Gumay woreda, next Kersa and at last was in Nono Benja woreda).
- The zone water department assigned a hydro-geologist to supervise the drillings in each woreda and each woreda also assigned water office staff for the close follow up of the drilling activities.

i) Payment to drilling company

Advance payment

- The company submitted a bank guarantee to the Jimma zone water department for the 20% advance to be given to it as put in the contract agreement.

- Based on the agreement it signed the department wrote a letter to the woreda water office so that each WASHCO to give an advance payment amounting 20% of the contact amount to the drilling company by stating the Account No. of the company.
- The woreda water office informed WASHCOs of each well on the amount to be advanced to the drilling company by referring the contract agreement and the letter written by the zone water department.
- Each WASHCO withdrew 20% of each well cost from the OCSSCo and transferred to the company with the help of the CMP supervisor.
- The drilling company gave a receipt to each WASHCO for the amount it received (as it was clearly stated in the contract agreement).

Other payments

- When the drilling and pump installation completed, the company requested payment to the zone water department.
- The drilling supervisor certified the payment requested by the company and sent the payment certificate to the woreda water office so that WASHCOs of each shallow well to approve and make payment/transfer payments to the drilling company. The name and account number of the company is stated in the payment covering letter sent from the zone to the woreda.
- WASHCOs of each well approved the payment,
- The WASHCO deducted the 2% withholding tax from the payment approved and paid to the water office expert who received a withholding tax receipt pad from the woreda revenue authority to collect such tax & deposit to the authority. The pad is to be used for any money the water office to withhold and is a common arrangement between the woreda water and revenue offices. The WASHCO received the original and one copy of the receipt, the drilling company representative took the original and the WASHCO received the copy of the receipt.
- The WASHCO withdrew the amount of money to be paid to the company from their account at OCSSCo and with the help of the CMP supervisor transferred the amount to the drilling company account at CBE. And each WASHCO received the bank transfer slip for the transfer made. During the 2008 review workshop of the region conducted on December 15-16/2016 the CMP supervisor brought and showed me a bank transfer slip of a community named "Gujji community" which deposited Birr 47,000 to "Key Engineering PLC" account at CBE but I could not copy it as it is somehow faded.
- Once received the money, the drilling company prepared the receipt in the name of the community who deposited the cash e.g. Gujji community, sent the receipt to the CMP supervisor with his representative and the CMP supervisor gave the receipt to the WASHCOs.

- Each WASHCO settled the receipt with other supporting documents like that of any low tech schemes to the woreda water office. The original financial documents are at the woreda water office and the copy is kept with each WASHCO.

j) Well head construction and pump installation

- The contract for the drilling, casing installation, well head construction and pump installation has been prepared to the drilling company. **The company contracted COWASH trained artisans** for the construction of well heads and the company supplied and installed the hand pump.

- Community contributed sand and stone for the well head construction. Also contributed eucalyptus and fenced the wells.

k) Shallow well drilling cost

- For Gumay woreda the average depth of the wells in the tender document was 70 meters at a total cost of Birr 126,000 per well (Birr 1,800 per meter). But the drilling depth of the wells ranged from 70 to 80 meters. I think the drilling cost is very reasonable and cheap due to the fact that the wells were tendered in cluster (24 wells in a lot) and such tenders attract drilling companies to minimize the mobilization and demobilization cost of the rigs.

l) Challenge faced & recommendation

- One community well was abandoned at a depth of 78 meters as was confirmed by the drilling supervisor from the zone water office and the WASHCOs were somehow hesitant the pay the cost for one thing they were expecting more trails to be made and for the other thing they wanted to know what alternative technology they will have as a water source. But due to explanation given by the water office head on the reason for abandonment and the contract article which obligates the client to pay for abandoned wells unless the fault of the drilling company, they agreed and paid the money to the company. Whereas there was no any complain/hesitation to pay the cost of drilling from the PTAs of the school of the abandoned well as they easily understood the possibility & cause of the abandonment.

- From this they have learned that although WASHCOs delegate the WWT (which in turn delegated the zone water department) it is important to make WASHCOs know during the WASHCO training on the possibility of shallow well abandonment like that of hand dug wells and number of shallow wells trials are allowed.

m) Discussion with drilling company manager

The drilling company manger was also contacted by phone on the overall situation of the contracting, the drilling and payment related issues.

- The manger saw the first two tenders advertised by the zone water department in a newspaper but he was thinking that as there are drilling companies having drilling experience & sites in the zone he was expecting those companies won but when he saw the tender for the third time he felt that the work is not contracted and decided to tender. In the mean time he was contacted by the zone water department head as he was contacting different drilling companies to whom he got their addresses. As he saw in the opening 4 drilling companies including companies owned by Indian's competed and his company was found to be the least evaluated bidder and awarded for the contract.

- As the tender document says that WASHCOs approve and effect payments he was expecting some problems in approving & effecting payment due to lack of willingness & capacity of the WASHCOs and form the fear that WASHCOs may not get the money timely from the donor. But in practice he found that the zone water department and woreda water offices were very supportive to the community and the communities were also very in need of the project and were very cooperative and positive to the drilling crew.
- Concerning the payment as the zone assigned a supervisor that followed the drilling & certified the payments and WASHCOs were confident to make payments and paid the money without major problem except some amount of money he has not yet received from Nono Benja woreda due to shortage of money in the woreda.

5.5.3 Shallow Well Drilling Experience in North Shoa Zone Woredas

In the 2007EFY & 2008EFY Abichu Nya'a woreda planned and implemented 3 and 4 shallow wells respectively. To share the experience of the implementation of the shallow wells I made a telephone discussion with Ato Kebede and Ato Gebreyes the CMP supervisor and assistant CMP supervisor of the woreda respectively.

a) Project application

- The communities were promoted by the woreda experts on the possibility of shallow well as one technology eligible for financing by the COWASH project (CMP approach). The promotion on shallow well was made directly because the villages where hand dug wells tried previously mainly by the woreda budget and could not be effective and also some were studied for shallow wells and were not recommended for hand dug wells by the zone experts were selected for the promotion. So once promoted communities were assisted by the kebele experts and come up with a shallow well project application. All the shallow wells are for community use.
- In the 2007EFY due to lack of hydro-geologist in the water office the sites were selected by the zone water office hydro-geologist but in 2008EFY the sites were selection by a hydro-geologist of the woreda water office.

b) Appraisal

- After the project applications have been appraised at desk level and were recommended for field level appraisal. The hydro-geologist of the zone in 2007EFY and the hydro-geologists of the woreda in 2008EFY went to the site for site selection and field appraisal together with the CMP supervisor of the woreda and chose the sites and field appraisals of the projects..

c) Approval

- Based on the recommendations of the appraisal team the WWT approved the shallow wells.

d) Training

- **WASHCOs** of the approved shallow wells attended the CMP management training given by the woreda WASH technical team together with other water point WASHCOs. But more briefing on the technology, its construction procedure & equipment required has been given to those shallow wells WASHCOs. As the number of shallow wells WASHCOs were small in both years it was fund not practical to train the WASHCOs alone.

- Based on the explanation the **WASHCOs** expressed that they do not have an experience in the tendering/procurement of such technology and expressed that they have an interest to delegate the WWT for contracting of the works on their behalf.

e) FA signing

- The WASHCOs signed funding agreement with the WWT chairperson.

f) Procurement Delegation

- **The WASHCOs** delegated the WWT in writing to contract the drilling and construction of the shallow wells on their behalf (including the well head construction and hand pump installation).

- Based on the delegation it got from the **WASHCOs** the WWT discussed on the issue, minuted the dissuasion and agreed that the woreda finance office to handle the tendering process (advertisement and tender evaluation) on communities' behalf and WASHCOs to make the contact agreement with the winner drilling company. The woreda has an experience in the tendering of shallow eels for government and MDG funded projects. The woreda gets drilling companies easily when tender and this may be due to close location of the woreda capital which is 155KMs from Addis Ababa.

g) Tendering

- Based on the delegation it got from the WWT which was in turn delegated by the WASHCOs, the finance office with the technical support of the water office prepared the tender document including bill of quantities & location of each well. In the tender document & also in the tender advertisement it was stated that communities are the owners of the fund and they are the one to make payments to the company.

- In the 2007EFY the tender was advertised in 2 times in the Addis Zemen newspaper and an Indian Company won the tender.

- In the 2008EFY the first tender was advertised once in the Addis Zemen newspaper 3 bidders bought and the price was found to be comparable with the budget and a drilling company named **"Hard Rock"** won the tender. The four COWASH shallow wells were advertised together with 2 shallow wells from the woreda budget.

- In both years 3 people from each shallow well WASHCO (chairperson, secretary and cashier) attended the tender opening.
- The woreda tender committee analyzed the tender; prepared the contract agreement for each well and the chairperson of each well WASHCO signed the agreement with the winner drilling company.

h) Drilling and supervision

- Each site was handed over to the drilling company by the hydro-geologist who chose the sites and the CMP supervisor.
- There is no advance payment made to the company because it was stated in the document.
- In the 2007EFY the zone water hydro-geologist was supervising the drilling of the wells and in the 2008EFY the hydro-geologist of the woredas was fully assigned and supervised the drilling of the wells.

i) Payment to drilling company

- It was clearly put in the agreement that the payment to the drilling company be made once when the construction of a well is completed, certified by the supervisor and approved by the WASHCO and no advance payment made.
- When the drilling and construction of each well completed as per the agreement the drilling company requested the payments to the WASHCOs, the drilling supervisor (in 2007EFY it was from the zone water office but in 2008EFY it was from the woreda water office) certified the payment requested by the company and briefed WASHCOs of each shallow well to approve and make payment/transfer payments to the drilling company.
- WASHCOs of each well approved the payment, withdrew the money from their account at OCSSCo and in the presence of the CMP supervisor and water office head paid the approved amounts to the drilling company cashier by hand.
- Once received money, the drilling company gave receipt to each WASHCO to confirm that it has received the money.

j) Well head construction and pump installation

- The contract for the drilling, casing installation, well head construction and supply and installation of hand pump was given to the drilling company.
- Community constructed access road to the drilling site, contributed sand & stone for the well head construction, contributed eucalyptus and fenced the wells.

k) Shallow well drilling cost

- The depth of the four wells in the 2008EFY ranges from 40 meters to 60 meters but the target depth put in the tender was 50 meters.

- As the 4 shallow wells drillings were tendered with the other 2 wells in the woreda, the mobilization and demobilization costs were included in the two wells of the woreda budget and the mounts are Birr 15,500 and Birr 18,500 respectively. The COWASH wells were included in the inter site mobilization cost which is Birr 22,500 when drilling rig was driven/moved from one well to the other.

- The costs of the drilling, casing supply and installation, hand pump supply and installation and well head construction amounts for each well are summarized below.

  - Well depth of 40 meters costs Birr 107,070 (including inter site mobilization). Average = 2,693 Birr/meter

  - Well depth of 48 meter costs Birr 116,483.50 (including inter site mobilization). Average = 2,427 Birr/meter

  - Well depth of 51 meters costs Birr 116,713.5 (including inter site mobilization). Average = 2,289 Birr/meter and

  - Well depth of 60 meters costs Birr 125,396 (including inter site mobilization). Average = 2,090 Birr/meter.

5.5.4 RPS implementation in Horro woreda

The discussion was made with Ato Deriba, the woreda water office head and Ato Tola, woreda CMP supervisor and as per the discussion the summary of the scheme is as follows.

- A rural piped scheme named **Odo** was constructed in the 2008EFY to benefit 1,200 people.

- The scheme is a rural piped scheme from gravity spring source having a spring capping structure, 10 meter cube collection chamber, 2000 meters pipe length and 2 public taps.

- The scheme is constructed fully using the CMP approach in which the WASHCOs contracted the labor work to trained artisans and the WASHCO bought construction materials from the woreda capital Shambu which is also the capital of Horro Gudru Wollega zone.

- The total construction cost of the scheme is Birr 220,000 of which Birr 35,000 is the community labor and materials contribution (which accounts to 15.6%) valued in to money.

- The scheme was designed by the zone water department experts.

6 CONCLUSION OF THE ASSESSMENT

The assessment shows that the use of CMP approach in high tech water supply schemes implementation is possible and encouraging and the following conclusions, which can be a basis for recommendations on how the approach can be scaled up in phase III of the project, are made from the assessment.

6.1 GENERAL ISSUES

6.1.1 Definition of RPSs

The definition of the RPSs in general and from gravity springs in particular was one of the issues included in the assessment. Some years ago there was problem of reporting in number of regions on the number of water schemes constructed by scheme type due to lack of clear cut definition between springs with collection chamber (with/without fountain) and springs with public fountains. To give responses to such reporting problems the Amhara region water bureau prepared a definition which is accepted by woredas and zones that RPS is a rural piped scheme having a minimum of 2 public fountains with a minimum pipe length of 1.5Kms (the distance is as per the GPT I standard and is to be changed to 1Km as per the GTP II standard). Even many regions woredas which implemented such schemes have the understanding that RPS is a rural piped scheme having at least two public fountains. The Amhara water bureau is planning to classify RPSs further in to small, medium and large that will be used mainly for budgeting, and also for estimating the number of beneficiaries for planning. In addition the WASHCO management structure will vary depending on the RPS classification (small, medium or large). So the following definition which is in use by number of regions & even practiced by woredas is recommended for use in the CMP approach as one of the high tech water supply schemes.

RPS is defined as a rural piped scheme/system **having at least two public fountains**.

6.1.1.1 Directions of the regions/water bureaus in high-tech implementations

The BPR prepared in many of the regions some years ago did not give the site selection, design, contract and contract management responsibilities to both woreda & zone water offices in general and woreda water offices in particular as at that time the capacities of the woreda and zonal water offices in terms of manpower were less. Although this is the case the bureaus did not put pressure to the offices not to handle such activities especially in the COWASH woredas as the capacities of the woreda and zone water offices is being improved from time to time and also the COWASH project woredas are getting support from the RSU. But in some cases the concept of the BPR is somehow being applied by some regions that still the implementation of the projects are being handled by the bureau upon delegation and whether the woreda offices delegated the bureau due to real capacity problem or is it due to the PBR needs its own way of checking. Anyways the regions (especially South and Amhara) are now thinking to re-consider such issues when the BPR is going to be revised. This initiation of the two regions is encouraged and can be good bases for woredas & zones to handle the implementation of some high tech projects upon delegation by WASHCOs with a strong capacity building and technical support from the bureau.

6.1.1.2 Use of high tech implementation manual

The CMP high tech implementation manual distributed for testing in Tigray and Amhara regions is somehow used but needs improvement such as including the high techs in the application preparation and appraisal training of woreda technical experts, increased use of the formats revised for use in high tech such as appraisal formats, and allocating some more training times/days for RPS WASHCOs or if possible when the number of such schemes is large enough arranging a separate training to those WASHCOs to make them better know the technology to be constructed and the management structure of the schemes. The effort made by the Amhara RSU to revise the RPS management structure put in the manual to be in line with the recent WASHCO organization directive of the region is very encouraging.

6.1.2 Implementation related issues

- There is high demand for high tech water supply schemes 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.
- Almost all WASHCOs have been reported for handling the implementation of the high techs water supply schemes from gravity springs like that of hand dug wells and on spot springs. The number of public fountains of the RPS from gravity springs ranges from minimum of 2 (in many woredas) to maximum of 10 (in Antsokia Gemza Woreda of Amhara region). Even a minimum of 15% community contribution is recorded in all RPSs. This practice has to be encouraged and has to continue in the way it has been handled without revising the CMP approach designed for low tech water supply schemes.
- Although the implementation strategy slightly varies from region to region, zone to zone, and woreda to woreda due to various reasons there has been efforts made by all the stakeholders to make the shallow wells implementation somehow different from the Woreda Managed Project approach. The common one in all regions was that communities delegated the WWT to handle the process on their behalf (which may have some element in it that WASHCOs are deciding on the budget granted to communities but the simplest activity to do). Any possibilities of making the implementation of the wells to follow better procedure than what has been so far has to be seen by regions.
- The supports given by the bureaus & zones to woredas & communities in site selection, design, tendering, contract management, supervision and training for high tech implementation is very encouraging.
- The maximum efforts made by some woredas & regions to make the WASHCOs be involved in the implementation of the high tech as much as possible is very encouraging and gives good input that there are number of possibilities to make the high tech implementation follow the CMP approach as much as possible. The most remarkable efforts include:-
    - The use of transferring the WASHCOs fund from the CBE of the MFI to the CBE of the drilling company construction in Duna woreda is very encouraging (shows

strong commitment of the woreda, and good working relationship between WWT & OMFI).

- The effort made by the Abichu Gena woreda of Oromia region for WASHCOs to attend the bid opening and sign a contract agreement with the drilling companies is also very encouraging. Of course the relatively closer location of the woreda from Addis Ababa (the woreda capital is 155Kms from Addis) and also past experience of the woreda in Tendering shallow wells have contributed for getting drilling companies to tender wells at woreda level.

- The Oda woreda experience in Benishangul Gumuz region and the Amhara region experience to make the WASHCO better involved in the implementation of the shallow wells by procuring Afridev hand pump and well head construction materials, and contracting the installation of hand pump and well head construction to local artisans is encouraging and shows the possibility of using mixes of contracting possibilities in the technologies.

- The Jimma zone experience of advertising the COWASH shallow wells with the same advertisement of shallow wells from the government budget of Nono Benja woreda for economics of scale and to attract drilling companies & arranging separate drilling agreement for each woreda is encouraging.

- The effort made by some woredas (SNNPR and Amhara) in preparing RPS designs is encouraging but there is also a risk of poor & uneconomical designs to be prepared as woredas lack the surveying equipments, surveyors and the like. So either the woredas capacities in the surveying equipments and surveyors has to be built, or depending on the size of the RPS to be designed surveyor and the required equipment supports have to be given to woredas if they have the other professionals such as engineers and socio economists to prepare deigns.

- Need for thinking decentralization of shallow well contracting and contract management to the zones especially in Amhara region. Out of the shallow wells contracted to the Amhara drilling enterprises there are 8 wells rolled over to the 2009EFY due to the work load of the enterprise. One of the causes of such thing can be that tendering is handled centrally by the region and other drilling companies may feel that their capacity is limited to handle large number of drillings tendered regionally or may think that difficult to compete with regional drilling enterprises who have high capacity & recognitions by the region and the like. Such thinking may limit the bidders and good chance for the contracts to be won or directly awarded to regional drilling enterprises on top of many works they have at hand (in 2008EFY drilling of wells in drought affected areas was also one of the works of the regional drilling enterprises). But if these had been tendered by zones there could have been a possibility of other private drilling companies to win and some of the wells could have been drilled already in the fiscal year. Although it is accepted that clustering/centralizing well drillings can bring economic of scale, there is also high possibility to be uneconomical in such a way that there may be cases that better to mobilize private drilling companies rigs **"if they win the tender"** than mobilizing regional enterprises rig from their regional or sub regional offices. Just as an example, mobilizing private drilling company rigs from Addis Ababa to North Shoa and Oromia zones woredas of Amhara region can be economical than or comparable to mobilizing the regional drilling enterprise rig from Bahir Dar or Kombolcha. The other one delayed projects have also costs to the government more than the physically counted money as nowadays provision of water has become an issues of **"good governance"** as it has been aired by the government in many Medias. So regions which have better water departments at the zone such as Amhara have to really see decentralization of drilling contracting and contract management to the zonal level as other regions did and have recorded good achievements. **When doing this the appropriate trainings to handle the process/assignment has to be given to the zone experts by the bureau/s.**

- One of the issues identified by the FTAT CMP and the capacity building specialists visit to Jimma zone in end of April 2016, and also the 2008 review workshop of COWASH in Oromia region conducted on December 15-16/2016 in Sebeta town shows that zones and woredas lack the contacts of private drilling companies in the country and this was also one of the reasons for the Jimma zone drilling advertisement did not get enough bidders in the first two tenders. Therefore the bureaus and the FTAT have to provide the lists and contact addresses of the drilling companies in the region/country so that they can contact them when needed.

- One problem raised in Amhara region & Gumay woreda which is non-willingness of the WASHCOs to sign on the payment certificates of abandoned wells seems natural but this can be minimized first by clearly stating/explaining the chance of the shallow wells to be abandoned like that of hand dug wells as they may assume that drilling is a 100% effective solution, make clear on the number of possible drilling trials to be made, even to include this in some sort of MoU to be signed (recommended by deputy water bureau head of Amhara region), strengthened the WASHCOs and the experts follow up which will make WASHCOs to be confident that the wells are abandoned not due to poor supervision, and it is good to clearly brief to WASHCOs on the specific causes of the abandoned wells. After clearly explaining the situation, if the WASHCOs are not willing to approve the payment, the water bureau has to be given a mandate to approve & effect payments (but there is a fear that the provision of this possibility may make regions to effect every payment without the WASHCO approval).

- On top of the above recommendations taking maximum efforts even by requesting expert's assistance from the bureaus in case of hydro-geologically very challenging places for selecting sites is the best measure to be taken. Sometimes there is a need to say the site is not suitable to shallow wells if there is such high probability sensed by the expert during site selection because it is not something we can try 2 to 3 times like hand dug wells. Maybe some of the shallow well sites abandoned were selected just to answer community request & tried with lesser possibility of getting water.

- There is a need for revision of the some RPSs management structures to be in line with the WASHCO establishment and legalization directives/guidelines in use by regions and the WASHCOs need technical support from woredas, zones and region in this regard.

7 RECOMMENDATIONS FOR SCALING UP

Based on the assessment made the following points are recommended for effective implementation of the high technology water schemes using the CMP approach. Some of the points are already included in the high tech implementation manual tested in Tigray and Amhara regions. And if there are issues which are recommended here but not included in the manual or if there are issues from the manual which need revisions, they will be revised & included in the manual and the revised manual will be shared to all regions for use. The recommendations include general issues and issues disaggregated in the three phases of scheme/project as preparatory phase, implementation phase and O&M management phase.

7.1 GENERAL

7.1.1 Eligible High tech Water Supply Schemes for the CMP approach

The following schemes are the high tech water supply technologies eligible for the CMP approach implementation.

1) **Shallow drilled wells equipped with hand pump.**

2) **Rural piped scheme from gravity spring with at least two public fountains.**

3) **Rural piped scheme from non-gravity (motorized) spring with any number of public fountains** with one of the following power sources.

    - Diesel driven generators
    - Power from grid system
    - Solar powered pumps (this is the one of the plans of the government in GTP II).

4) **Rural piped schemes from deep well/borehole with any number of public fountains** with one of the following power sources.

    - Diesel driven generators
    - Power from grid system
    - Solar powered pumps (this is the one of the plans of the government in GTP II).

Project applications to COWASH for RPSs from deep well sources shall follow one of the following two possibilities which are common practices in the sector.

a) A deep well/borehole may have already been drilled by government or other budget sources before, and civil & electro-mechanical works applications can come to COWASH or

b) An application for the deep well/borehole drilling, and civil & electro-mechanical works construction may come to COWASH. In this case most probably the **drilling**

application can be treated as phase I of the project and the **civil and electro-mechanical works can be seen as phase II** of the project. These two phases either can be handled in the same year depending on the budget availability and size of the scheme or the deep well drilling (phase I) can be done in the first year and the civil & electro-mechanical works (phase II) can be implemented in the second year.

7.1.2 Need for revision of the water bureau BPR for more decentralization of responsibilities

The Business Process Re-engineering (BPR) prepared some years ago and in use by the water bureau, zonal water departments and woreda water office needs revision and this has been well understood by many regions and even some of them have planned to revise it. The need for revision of the BPR is justified and required because the present manpower situation and capacity of the zone water departments and the woreda water offices is better than what has been by the time the BPR in each region was prepared and also as per the GTP II due to need for improved level of water service to communities there is definite need for large number of high tech water supply schemes/systems to be implemented in the rural areas. And managing the designs, site selection, supervision, and contracting & contract management of such schemes centrally by the **bureaus** or zones alone will not be effective. So the revision of the BPR is very important for the sector in general and for the COWASH project/CMP approach in particular in such a way that if woredas and zones are given such mandates of handling high techs and if due to lack of capacity WASHCOs delegate the closer water structure/water office their chance to be better involved in the process and the possibility of exercising their power such as in fund management will increase due to possibility of frequent contact with the woreda water offices than that of the bureau or zones. This is in short to say that the WASHCOs role, confidence and involvement in decision will be better for the projects to be managed by woreda water offices than that of **water bureau** or zone departments. But if the division of such mandates among the sector levels (bureaus, zones and woredas) is not re-considered, it may still give mandates for the water bureaus to retain the implementation of these schemes at the bureaus more than the reason of lack of capacity of zones & woredas. Acknowledging the flexibility of the bureaus seen in the COWASH woredas and zones for site selection, designs, and contracting and contracts management in the last phases and assuming that the same will continue in phase III, the following are recommended for the effective implementation of the above high tech water supply schemes using the approach.

7.1.3 Need for WASHCO legalization

As part of making recommendation on how the high tech water schemes be safely implemented using the CMP approach, I have also made telephone discussion with two legal advisors on the legality of making contracts especially big and long duration ones by WASHCOs and the possibility of preparing bid bond, performance bond and bank guarantee for advance payment in the name of the WASHCOs. As per the advisors as far as they are elected by communities to represent a certain group for certain activity and they have a supporting letter from the local administration such as kebele and woreda the committee may make technically simple & short duration contracts such as procurement of materials in which the possibility of dispute to arise is minimal as the contracts will be completed in short period of time. But when technically complex and long duration contracts are signed there will be high possibility of dispute to arise in the course of the contract and some cases may be taken to the court and in this case such non-registered committees may lack recognition in group and may be treated as individuals which may make them weak to win the dispute and it may demand the interference of the local administration which organized them such as kebele or woreda (one such interference can be by writing a letter to the court stating that they are committees democratically elected by users to perform a certain activity) and such things may cause a delay in the performance of the contracts. **Although WASHCOs may make contract as elected representatives of the community to handle the specific assignment, the legal advisors strongly recommend that the responsible body for legalising such committees to legalize them.** In general in order for the WASHCOs to sue and be sued in front of court as committees rather than individuals, getting legal status is very mandatory. In this regard SNNPR, Amhara and Benishengul Gumuz regions have already started legalizing WASHCOs. But Oromia and Tigary regions are lagging behind and have to take a step forward otherwise it may give loophole for the bureaus to decide handling high tech implementation by them.

7.2 PREPARATORY PHASE ACTIVITIES

a) Promotion

- Include the possible high tech water supply schemes to be financed by COWASH in to the promotional materials. This include their management structures, the minimum percentages of community contribution required for construction, the minimum amount of upfront cash contribution for O&M, and if possible the most likely tariff for covering O&M for RPSs of different sources.

- The promotion can concentrate in kebeles, communities and institutions which strongly need the different types of high tech water supply schemes depending on the settlement patterns of the village/s, the populations of the village/s, existence of site section reports/studies made in the need of the areas for high techs, trails/effort made in the construction of low tech water scheme (such as low techs constructed but have very low yield as compared to demand of the users, hand dug wells tried but abandoned due to need for machine drilling) and the potentiality of the areas for RPS from gravity springs to supply many communities. The woreda water office with the knowledge/decision of the WWT can decide such areas for the promotion. This is recommended because due to the limitations of budget in this phase of the project giving budget grant to many high tech applications will be difficult and may raise unnecessary expectations from the users and it will also save experts time by concentrating to more potential areas/applicants.

b) Application preparation

- Use the format revised for the high techs. The format will be attached with the manual to be revised and it was also attached with the old high tech manual.

- Prepare good data for application preparation such as costs, and upfront O&M cash amount etc. which will help the KWT members in the preparation of applications.
- Woreda water offices to give assistance to the communities for high tech implementation applications preparation especially for potential communities for RPSs. This is to increase the chance of getting better applications form communities which will minimize the work load in desk and field appraisals.
- Depending on the appraisal result aggrading of the application is good as WASHCOs & KWTs may lack the capacity to come up with better applications of high techs.

c) Appraisal of applications

- Use the appropriate appraisal format for desk and field appraisal. The formats will be attached with the manual to be revised and they were also attached with the old high tech manual.

c.1) Desk appraisal

- Conduct desk appraisal and inform the result to WASHCOs as soon as possible. The format is made simple and most likely the result will be known in a day.

c.2) Field appraisal

- As the complete field appraisal of the high tech water supply schemes need the selection of the sites for drilling (in case of the shallow wells and deep well drillings) and the preparation of the designs in case of the rural piped schemes. So the field appraisals can most probably be made in two phase/two times as follows.
    - First the some sort of **preliminary field appraisal** can be made which will lay a potential ground for the specific well site selection in case woredas do not have the hydro-geologists who can choose the sites and for design preparation for piped schemes. The preliminary field which mainly concentrates in knowing the potentiality of the technology applied by the community appraisal can be made by the woreda experts, the affordability & willingness of the community to cover the O&M cost/water tariff, the availability of the possible material & labor contribution from the community and its willingness and the like. Based on the preliminary field appraisal the woreda can request a hydro-geologist assistance from the zone or bureau for drilling site selection and the study and design team from the zone or bureau for piped schemes.
    - In case if the woreda has a hydro-geologist experienced in site selection, he/she can select the site and complete the field appraisal.
    - Depending on the size of the RPS from gravity springs and also the existence of experienced design teams the woreda can prepare the

designs and the detail field appraisal can be completed when the design is completed. But the capacity of the woreda in preparing quality & complete designs has to be critically seen.

- Once the drilling sites have been selected by the zone or region hydro-geologist the field appraisal can be completed for well drillings. In this case if possible discussion has to be made again with all community members otherwise at least with WASHCOs, kebele officials and some community representatives and field appraisal will be completed.

- Once the designs of the piped scheme is completed by the woreda if has capacity, or by the zone or bureau, discussion has been made again with communities if possible otherwise at with WASHCOs, kebele officials and some community representatives and field appraisal will be completed.

c.3) Minimum amounts of upfront cash contribution for O&M and community contribution for construction from users for appraisal

Like that of the point water sources the appraisal criteria for high tech water supply schemes also include the upfront cash contribution of the community for O&M, and the minimum percentages of community contribution (manly in kind) for the construction of the projects. Therefore the following are recommended to be used during the appraisal of the project applications.

c.3.1) Upfront cash contribution for O&M from users

- As much as possible the upfront cash contribution has to cover the one year O&M cost of the schemes like the practice in point water sources but in the case of high tech water supply schemes mainly for that of RPSs due to lack of reliable data during the project preparation, the specific natures of each RPSs tariff payments and the relatively higher amounts of the tariff required demands setting higher amount of upfront cash contribution for O&M. In the case of RPSs it is good to set the minimum upfront cash contribution to be at least equals to the cost of one public fountain to be the cost of one point water source and the amount expected from the RPS to be number of public fountains multiplied by the upfront O&M cash for a point water source in the woreda. This practice may be more feasible for piped schemes from gravity springs but for motorized schemes setting such small amount may cause a tariff load on community and better amount of minimum upfront cash contribution has to be set and encouraged.

- For shallow wells to use relatively a higher amount of upfront amount than that of hand dug wells to account the need for more spare parts by shallow wells due to deeper depth than the hand dug wells. For example in some woredas which are demanding Birr 1,000 to 1,500 to point water sources demand Birr 2,000 for shallow wells.

c.3.2) Community contribution for construction

The community contribution set in the former high tech implementation manual has been sent to Amhara & Tigray for testing. The community contribution recorded in the tested technologies such as shallow wells and RPS from gravity sources are almost in line with what has been put as minimum. Therefore the following minimum amounts of community contribution for construction mainly in labor and material supply are recommended to be used also in phase III.

- For shallow wells drilling & well head construction minimum of 5% of the drilling & construction cost.
- For RPS from gravity springs minimum of 15% of the construction cost.
- For RPS from motorized springs minimum of 10% of the total construction cost.
- For RPS construction from deep well (including or excluding well drilling) minimum of 10% of the total construction cost.
- For deep well/borehole drilling only (if this application is to be treated as phase I) minimum of 1.5% of the drilling cost.

But if there are better percentages of community contribution practice and in use by the regions, it is highly encouraged to use those minimum percentages of community contribution. In this case Amhara region is a good example for using minimum 30% community contribution for low tech water supply schemes.

c.4) Schemes management structure

One distinguishing features of the RPS from point water sources is the management (WASHCO) structure of the scheme. So one of the tasks of the appraisal team is to assist communities in establishing the management structure as per the specific region WASHCO establishment regulations and directives. Of course the high tech manual also proposed possible management structure of the scheme which has to be revised with the specific region directions on WASHCOs structure.

d) Well drilling site selections, and study & design of RPSs

As it has been said by many of the water bureaus officials during this assessment the manpower (expertise and number of staff) situation of the woreda water offices is better than what it was some years ago and this is why nowadays most of the bureaus are not strongly applying what has been put in the BPRs prepared some years ago which hardly gives mandate to woredas in drilling site selection, study & design of RPS, construction supervision of RPSs, and contracting & contract management of high techs. But now there are many woredas which have capable hydro-geologists in well site selection &

drilling supervision, and engineers which can design the RPSs but still there are gaps in socio-economists, surveyors and surveying equipment. Therefore depending on the situation of the specific woreda the zone water departments and the water bureau have to support woredas in drilling site selection, and study & designs of RPSs. The following are the points to be given attention in drilling site selection, and in the study & design of RPSs.

- Whoever may select the shallow well and borehole drilling site, there has to be a site selection report which contains important points for the preparation of the tender document and for estimation of the drilling cost. The report shall include at least the name of the site, location/distance of the site from the woreda capital, the estimated depth of the well, the recommended diameter of the well, the recommended technique of drilling (drilling by cable tools or rotary rig) etc.

- RPS from non-gravity springs and deep wells (which need electro-mechanical works) have to be prepared by the zone water department or water bureau experts as they are very sensitive and if problems happen in the surveying, and design of the pumps and generators capacity, it will cause big problem in the project.

- If the size/length of the RPS from non-gravity spring is big (to mean it needs better pipe line route selection & surveying) and also if a woreda does not have professions, the zone water department or the water bureau has to prepare the deigns.

- If it is believed that a specific woreda has the capacity to design RPSs from gravity springs depending on the size, the woreda can get the surveyor and equipment support from the zone or bureau and can prepare the designs. But it is good that the zone engineers to review the designs

- 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.

- The RPS design to be prepared has to have at least the following contents which will be good basis for successfully implement the project and also for the sustainability of the project.

    - The demand forecasting and hydraulic calculation.

    - Calculation in the capacity of the pump and the power source (generator, grid power and solar panel if any).

    - The scheme management structure.

    - Drawings, specification and priced bill of quantities for each scheme component. These are the good basis for contracting and effective contract management.

- The affordability and willingness to pay assessment of the community which will be a basis for the tariff setting for users.

In addition to giving support in site selection, study & design, design review and construction supervision to woredas, there should be an effort by the zone water departments and by the water bureaus to build capacities of the woredas staff by training.

e) Project Approval

- Like any COWASH financed schemes based on the desk & field appraisal results the WWT approves the project for funding (decides on the fate of the project).

f) Funding Agreement Signing

- Like any COWASH financed schemes the WASHCO chairperson of the approved project signs the funding agreement with the WWT chairperson.

g) CMP related trainings in high tech water supply schemes implementation

- The promotion, application preparation and appraisal of high tech water supply schemes has to be included in the promotion, application preparation and appraisal trainings to be given to woreda experts. And at least the application and appraisal formats are explained in the training.
- The points to be promoted about the high tech water supply schemes and the applications preparation format has to be included also in the CMP training to be given to KWT members.
- The WASHCO training manual to include also some important features of the high tech water supply scheme approved such includes the management structure and the role of the WASHCOs, some briefing on the technologies, the possible implementation modalities of the technologies etc. Depending on the number of high techs especially RPSs from non-gravity sources (which need electro-mechanical equipments) approved in the woreda the possibility of arranging a separate training for WASHCOs is good option.

7.3 IMPLEMENTATION OF HIGH TECHS

7.3.1 General

The implementation phase includes contracting & its management, construction/drilling, supervision and effecting payment to service providers. This is the most important section of the assessment report which will be an input for revising/revisiting of the CMP high tech implementation manual.

As it was written in section 2 of this report in short "**CMP** approach is a matter of increasing ownership of the community on their WASH projects and empowering them by giving the responsibility of managing or deciding on the resources allocated/granted to it (on top of the resources mobilized from 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 we are going to design/re-design shall have:-

- Real/tangible elements that differentiate 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 this will be good asset for maintenance, rehabilitation or future expansion of the project.

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**).**

a) **The WASHCO to fully handle the procurement and financial management** like that of the low tech water supply schemes.

b) **The contracting and its management to be splitted** 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.

   b.1) WASHCO to procure and mange the portions of the construction activities which are easier to be managed by them and,

   b.2) 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. 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.

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

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

Addition points in the case of delegated procurements

Even in the cases of procurements delegated to WWT (which in turn can delegate the zone water department or the water bureau) the possible processes & activities which can be easily handled by WASHCOs have to be given to WASHCOs. Such include:-

- The type of activities or processes the WASHCO agreed to delegate to the WWT has to be clearly stated in the delegation letter and the WWT in turn has to refer the delegation and delegate the zone water department or water bureau.
- The tender document has to include what will be the roles of the community (WASHCO) in the contract management such include approving of the payments and effecting the payment to the drilling company. The inclusion of such items in the drilling contracts awarded so far by zones and regions have contributed a lot for the successful completion of the contracts.
- WASHCOs to participate in the tenders opening when possible.
- WASHCOs can sign the contract agreement with the drilling company or the contractors especially for contracts tendered by woreda as it is easier to do (like the case of shallow wells tendered in Abichu Nya'a woreda of Oromia region) when possible.
- WASHCOs have to co-approve the payment certificate together with the body delegated and signed the contract agreement on behalf of WASHCOs, and WASHCOs to transfer the money to the contractors/drilling company.
- WASHCOs have to co-approve the payment certificate together with the body delegated and signed the contract agreement on behalf of WASHCOs, and WASHCOs to transfer the money to the contractors/drilling company. In this case especially if the contracting and contract management is handled by the bureau, the possibility of paying the drilling company/contactor directly from the bureau once co-approved by WASHCOs can be possible (of course it needs either to clearly delegate this in the initial delegation or if not done initially the delegation can be made by WASHCOs in every payment).

7.3.2 Detailing the alternative implementation arrangement to each of high tech technologies

Although the above is the general direction in procurement and contracting for high tech implementation, based on the experience in the past couple of years, and the complexity and the nature of the construction or drilling works, the above general recommendations are detailed for each technology as follows.

7.3.2.1 Implementation arrangements for RPS from gravity spring sources

Implementation of RPS from gravity sprigs using the CMP approach is almost same as (an extension of) the experience of implementing spring with collection chamber which has been implemented so far by WASHCOs except the size of the scheme is relatively large and serves number of villages or kebeles. In the past couple of years numbers of WASHCOs in the project woredas have been implementing such RPSs as the major construction materials (pipes & fittings) are available at woreda capitals or zonal capitals or nearby towns and the schemes can be constructed by artisans or MSEs having experience in water schemes construction. Therefore the implementation of RPSs from gravity spring source will fully follow the CMP approach as it has been practiced for low tech water supply schemes (hand dug wells and on spot sprigs). Which means WASHCO will handle all the implementation process with the technical support of the woreda water office, zone water departments and the water bureau depending on the type of assistance required.

For this purpose WASHCOs shall use the WASHCO procurement guideline prepared on December 8/2016 for use in phase III of the project and sent to the regions.

Depending on the availability of the expert and size of the project, the woreda water office or the zone water department shall assign a supervisor for the work. The supervisor checks the progress & quality of the work & construction materials, assists WASHCOs in data recording and certifies payment requested by the artisan/contractor or prepares the payment certificate if the artisan does not have the capacity.

Once the work reaches at a payment level as per the agreement the contractor prepares the payment, the supervisor certifies the payment and the WAHCO chairperson approves the payment, WASHCO deducts 2% withholding tax from the approved payment & pays to the woreda revenue authority, WASHCO transfers the payment to the contractor/artisan and receives receipts.

The WASHCO settles the receipts of the construction materials and equipment procurement, artisans/contactors payment and the others if any to the woreda water office

In cases if some construction materials such as pipes & fittings are not available at woreda, adjacent woreda or even at zone capitals or WASHCOs of adjacent schemes want to procure the materials together, they can delegate the WWT to procure the specific materials on their behalf.

The rehabilitation or expansion of rural piped schemes from gravity springs shall follow the same implementation modality like that of the new RPS from gravity springs.

7.3.2.2 Implementation arrangements for Shallow & deep well drillings

a) Contracting options for shallow wells

The specific natures of the shallow well and deep well drillings which need drilling rigs (heavy machines) and casings for lining which mostly are imported demands clustering & contracting number of wells at woreda, zone or region level to attract drilling companies to tender and also to lower cost of drilling. In this case the following alternatives methods of procurements are recommended.

The major principle in use in the drilling and construction of shallow wells are:-

- The drilling, casing supply and casing installation of the wells be made by the drilling companies and

- Unless there is a justifiable reason for giving full contract to the drilling companies, WASHCO procures hand pump and well construction materials, and contracts the hand pump installation and well head construction to the local artisans.

It is a common practice that the installation of hand pumps and well head constructions for the works included in the drilling company's contracts has been handled by artisans of the project woredas contracted by the drilling companies. Hence recommending such works to be contracted by WASHCO to artisans sounds good.

The contracting of the drilling, casing supply and installation to be contracted to the drilling companies shall follow one of the following two options **(a, b** or **c)** with the order of preference (if conditions allow "**a"** is the most preferred option).

a) WASHCO to tender & contract drilling, casing supply & installation to drilling companies. And procure hand pumps and well head construction materials by their own, and contract artisans for the installation of the hand pump and well head construction.

    - One simple case for the possibility of WASHCOs to contract drilling companies for drilling work can be if there is a drilling company which has already been contracted for other shallow wells drilling in the woreda and if the price is found to be reasonable and there is an urgent need for the well to be drilled such as heavy rain coming in the area which may affect the drilling work. In this case the WASHCO can award the contract to the drilling company with the approval of case by the WWT.

b) Delegation of the drilling, casing supply & installation contracting to the WW. And procure hand pumps and well head construction materials by their own, and contract artisans for the installation of the hand pump and well head construction.

    - If the WWT does not have the capacity to handle the delegated activity, it can then delegate the zone water department or water bureau.
    - In this case the delegated body can tender the work together with other shallow wells by putting the wells in one woreda as one lot (in case if more than one woreda delegates the zone or bureau) and the bill of quantity of the specific site in the lot separately.
    - The delegated body signs the drilling contract agreement of the woreda wells with the drilling company. If the WWT advertises the tender, the possibility of the specific WASHCO to sign the agreement with the winner drilling company is encouraged.
    - The delegated body copies the drilling agreement of the wells in the specific woreda and sends to the woreda water office. This is because that the water offices will use it for drilling follow up, checking the payment when requested by the drilling company or explain to the WASHCOs when approving payments.

- The woreda water office copies the priced bill of quantity of the specific well and gives to the WASHCO for filling & reference when approving the payment.

c) If there is a justifiable reason WASHCO can give full contract of the work to the drilling company or can delegate the WWT to handle on its behalf.

When the procurement of drilling contract, procurement of hand pump and well head construction materials, and contracting artisans for the construction of well head & hand pump installation is to be handled by WASHCOs, it shall use the WASHCO procurement guideline prepared on December 8/2016 and sent to regions for use in phase III of the project.

b) Supervision and effecting payment to the drilling company

i. Drilling Supervision

Depending on the availability of hydro-geologist in the woreda water office or in the zone water department, a drilling supervisor will be assigned for the well. The supervisor checks the drilling progress, assists WASHCOs in data recording and certifies payment requested by the company.

ii. Payment approval and effecting/transfer

When the drilling work reaches at a stage where payment can be requested as per the drilling agreement, the payment will be processed as follows.

- The drilling company prepares payment certificate and requests the contracting body.
- The contracting body gives the certificate to the supervisor and the supervisor certifies the payment.
- The supervisor explains about the payment to the WASHCO and WASHCO chairperson approves the payment.
- The contracting body co-approves the payment with the WASHCO chairperson.
- The WASHCO deducts the 2% withholding tax and pay to the woreda Inland Revenue authority and gives the original receipt to the drilling company.
- The WASHCO transfers the payment to the drilling company either in cash or transfer by bank after it withdraws the cash from the MFI sub branch (woreda woreda) or can transfer directly from the MFI sub branch (woreda branch) account at CBE to the drilling company account at the CBE (assuming the company has account at CBE).
- The drilling company gives receipt to the WASHCO once it receives the money.
- The WASHCO settles the receipt at the woreda water office.

iii. Other option for payment transfer to the drilling company

- In case the contracting body is the water bureau, there can be a possibility for the payment to the drilling company to be made directly by the bureau after co-approved by the WASHCO. In this case the delegation for payment can be given to the water bureau by the WWT preferably when delegating the tendering or can be made in writing by the WASHCO at each payment.
- But in this case where will the receipt be kept and who to be audited for the payment has to be clearly thought and how the woreda water office can have full/exact drilling cost of the well together with other costs such as pump procurement and installation, well head construction and WASHCO administrative expenses has to be thought/designed a head of time.

c) Contracting options for deep well drilling

What makes the deep well drilling different from the shallow wells is that mostly deeper than the depth of shallow wells, it requires higher depth drilling capacity rig, more costly than shallow wells, and expected to have more yield than shallow wells as it is to be drilled for constructing piped scheme/system from it after a design is prepared. Due to these reasons contracting, contract management and supervision of deep well drilling requires care hence handling such contracts by the bureaus is a common practice.

So the contracting and contract management procedure of the deep wells shall follow that of shallow wells contracting & contract management by delegation. The most common option is that WASHCO delegates the WWT, and then the WWT delegates the zone department or most likely the water bureau. The zone water department or water bureau administers contacts & administers the contract. In this case at least **WASHCOs' approval of the payment certificate together with the contracting body has to be kept** as it is the most possible option that communities can exercise their decision power on the budget granted to them.

The drilling supervisor shall be assigned from the zone water department or water bureau.

In case the drilling contract is signed by the zone water department, in addition to co-approving payments together with the department WASHCOs transfer the payment to the drilling company.

In case the drilling contract is signed by the water bureau, once the payment certificate is requested by the drilling company, certified by the drilling supervisor and co-approved by the contracting body and the WASHCO chairperson the water bureau can directly pay the payment to the drilling company. This needs delegation of the water bureau by the WWT basing the delegation it got from the WASHCO.

7.3.2.3 Implementation arrangements for RPS from non-gravity spring source or deep well source

The natures of the rural piped schemes from non-gravity springs or from deep well sources are different from that of the rural piped schemes from gravity springs. One feature is that piped schemes from non-gravity source need supply and installation of electro-mechanical works such as submersible/surface pumps, diesel driven generators or solar power driven pumps. In addition due to the need for storing water amounting at least 1/3 of the maximum daily demand of the population it requires higher storage capacity reservoirs than that of gravity springs and such reservoirs can be made either from concrete or combination of stone & concrete (sandwich reservoir) or steel tanker. The other feature is that in order for the water to flow by gravity to the different public fountains and also to have pressure for future house connections, there may be a need for elevating the reservoir to get enough pressure/head. As the pressure mains (pipe from the well to the reservoir) are usually under high pressure it requires high quality/standard pipes which most of the time are difficult to get from the nearby market to the communities. All the above technical issues make the piped scheme from non-gravity sources technically complex and require experienced contractors, contract administrators & supervisors. In this case contracting & contract management of the majority of the construction activities by WASHCOs makes it difficult and obvious need for delegation to the zone water department or most probably to the water bureau.

Therefore the following 3 alternative methods (a, b or **c) of procurements are recommended.**

a) WASHCO can fully contract the civil works construction other than the public fountains, cattle troughs, washing basins if any & electro-mechanical works to water works contractors or MSEs. And can procure construction materials required for the construction of public fountains, cattle troughs and washing basins, and give the construction of these components a labor contract to artisans or MSEs.

b) WASHCO can delegate WWT to fully contract the civil works construction other than the public fountains, cattle troughs, washing basins if any & electro-mechanical works to water works contractors or MSEs. And can procure construction materials required for the construction of public fountains, cattle troughs and washing basins, and give the construction of these components a labor contract to artisans or MSEs.

- If the WWT does not have the capacity to handle the delegated assignment, it can then delegate the zone water department or water bureau.

Additional points on contracting the construction work by WASHCO

- Splitting contracting so that WASHCOs can contract portion of the work builds the capacities of the WASHCOs in procuring construction materials and contracting labor which will be a good base for handling O&M management, house connection and rehabilitation of the system/scheme in future, it creates job opportunity to the local artisans/MSEs and material suppliers, and it can also contribute for reduction of the construction cost of the project.

- It is a common practice that private contractors who take contract for the construction of piped schemes usually use masons and local artisans of the locality for the construction of civil works such as public fountains, cattle toughs, washing basins usually at lower cost. Hence the option for contracting these works by WASHCOs sounds good.

- When WASHCO conducts the procurement of the works (full contracting), services (labor contracting) or construction materials by their own, it shall use the WASHCO procurement guideline prepared on December 8/2016 and sent to regions for use in phase III of the project.

- The supervision, payment preparation, payment certification, payment approval and effecting/transferring money to the contractors/MSEs/artisans follow the same procedure with that of the rural piped scheme from gravity springs shown in sub section **7.3.2.1** of this report.

When contracting all the construction works or portion of the construction works by delegation, the following procedures shall be followed.

- The WASHCOs in writing delegates the WWT by stating the type of construction works (all or certain scheme components) it want to delegate.

- If the WWT does not have the capacity to handle the deleted activity, it can delegate the zone water department or the water bureau.

- The delegated body prepares the tender document and tender the delegated work.

- The delegated body analyses the tender and signs the construction contract agreement with the contractor. If the WWT advertises, the possibility of the WASHCO to sign the agreement with the winner contractor is encouraged.

- The delegated body copy the construction contract agreement to the woreda water office. This is because that the water office shall use it for construction follow up, checking the payment when requested by the contractor or explain to the WASHCOs when approving payments.

- The woreda water office copies the priced bill of quantity of the contracted works to the WASHCO for filling & reference when approving the payment.

The rehabilitation or expansion of rural piped schemes from non-gravity springs or deep well sources shall follow the same implementation modality like that of the new ones.

7.3.2.4 Supervision and payment of rural piped schemes from non-gravity springs and deep wells

a) Construction Supervision

As it was stated earlier due to the natures of the scheme components construction supervision of rural piped schemes from non-gravity springs and from deep well sources require strong supervision by experienced supervisor/s.

Depending on the availability of experienced construction supervisor from the zone water department or the water bureau, a capable supervisor has to be assigned for the supervision. In case appropriate experts cannot be found from the zone or the bureau the possibility of employing a private supervisor by the contracting body can be seen as an option. The cost of the supervisor is to be covered from the government of Ethiopia as operational budget by the contracting body. The supervisor has to be available in the site frequently especially when technically complex components of the scheme are constructed or installed. The supervisor follows & checks the progress and quality of the construction, assists WASHCOs in data recording and certifies payment requested by the contractor. The detail job description of the supervisor shall be prepared and given to him/her and the contracted parties.

For the scheme components such as public fountains, cattle troughs, washing basins if any which contracting and contract management is recommended to be handled by WASHCOs, a construction supervisor can be assigned from the woreda water office and can work closely with the supervisor assigned from the zone or bureau.

b) Payment approval and effecting/transfer

When the construction work reaches at a stage where payment can be requested as per the agreement, the payment will be processed as follows.

- The contractor prepares payment certificate and requests the contracting body.
    - The contracting body gives the certificate to the supervisor and the supervisor certifies the payment.
    - The supervisor explains about the payment to the WASHCOs and WASHCO chairperson approves the payment.
    - The contracting body co-approves the payment together with the WASHCO chairperson.
    - The WASHCO deducts the 2% withholding tax and pay to the woreda Inland Revenue authority and gives the original receipt to the contractor.
    - The WASHCO transfers the payment to the contractor either in cash or transfer by bank after it withdraws the cash from the MFI sub branch (woreda branch) or can transfer directly from the MFI sub branch (woreda branch) account at CBE to the contractor account at CBE (assuming the contractor has account at CBE).
    - The contractor gives receipt to the WASHCO once it receives the money.
    - The WASHCO settles the receipt at the woreda water office.

c) Other option for payment transfer to the contractor

- In case the contracting body is the water bureau, there can be a possibility for the payment to the contractor to be paid directly by the bureau after co-approved by the WASHCO. In this case the delegation for payment can be given to the water bureau by the WWT preferably when delegating the contracting or can be made in writing by the WASHCO at each payment.

- But in this case where will the receipt be kept and who to be audited for the payment has to be clearly thought and how the woreda water office can have full/exact construction cost of the scheme together with other costs such as costs of construction activities handled by & payments made by WASHCOs, WASHCO administrative expenses & other payments if any has to be thought/designed a head.

7.3.2.5 Signing of MoU for the effective implementation of RPS

As the construction of rural pied scheme from non-gravity springs and deep well sources take number of months and involves different actors, there has to be a Memorandum of Understanding (MoU) which binds the parties involved in the work. Such parties include WASHCOs, community, contactor, artisan/s, woreda water office, zone water department, and water bureau and construction supervisor. So in order to successfully complete the contract MoU detailing the roles and responsibilities of the parties involved is required. This experience is common in Amhara region and contributed a lot for the successful completion of many rural piped schemes.

The sample MoU in use by Amhara region shall be attached with the manual so that regions can adapt and use it.

7.3 O&M PHASE

In the O&M phase of a scheme the following issues have to be addressed to ensure its functionality & long term sustainability, and strong & continuous support has to be given to WASHCOs from all levels.

a) 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.

b) 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.

c) The WASHCOs have to be trained in O&M of the scheme.

d) The employed technical staffs have to be trained in their areas of responsibilities.

e) A clear tariff collection, saving, usage and auditing system has to be designed.

f) A clear programme for WASHCO members meeting, and WASHCO meeting with the community members has to be designed.

Annex 1. Questionnaire for assessing the implementation practice of CMP approach for high water supply technologies in COWASH regions

a) The high tech water supply schemes recommended to be implemented and included in the CMP high tech implementation manual are the following:-

- Shallow drilled well equipped with hand pump
- Piped scheme from gravity spring (at least with two public taps)
- Piped scheme from motorized spring
- Piped scheme from deep wells

b) The region's experience will be assessed in the following ways.

- Discussions will be made at the regional level with the RSU staff and COWASH project director/coordinator from the water bureau. The questionnaire is designed mainly to suit for this discussion.
- Depending on the issues to come out during the discussion at the water bureau, the COWASH focal person from BoFED may be contacted.
- Visit to and/or discussion with woredas and/or WASHCOs.

c) Visit to and/or discussion with woredas & WASHCOs

The need for the visit and discussion with woredas and WASHCOs depends on the following conditions.

- If during the discussion with the region, the region cannot give clear direction/information how the technologies are implemented.
- If some good experience from a woreda is raised during the discussion.
- A woreda which has implemented high techs from deep well source or mortised spring has to be visited as these are the most difficult technologies to be implemented using the CMP approach.

c.1) At woreda level

- The discussion will be made with CMP supervisor and water office heads and other experts on some of the issues raised by region and which need clarification/confirmation from the woreda.
- Will refer water schemes files.

c.2) At WASHCO level

- The discussion will be made with the WASHCO members on some of the issues raised by the region and woreda and which need clarification/confirmation from the WASHCOs.
- Will refer project file.

Questionnaire for assessing the implementation practice of CMP approach for high water supply technologies in COWASH regions

a) General information (common to all high techs)

a.1) Regional direction in high techs implementation

- Does the region have any definition or criteria for high tech water supply schemes especially related to rural piped schemes (RPSs)?____________________________
- Is there a regional (water bureau) direction in high tech water supply schemes implementation such as high techs to be implemented only by bureau or zones only?
- If yes, what made the region to device this direction?__________________________
- If yes, how can the region implement the CMP approach in high techs?____________
  ____

a.2) Use of CMP high tech implementation guideline

- Does the region make use of CMP high tech implementation guideline by COWASH?
  ____
- Is the guideline cascaded to woredas? ____________________________________
- How it was cascaded to woredas? a) During training b) individually to those woredas which implement high techs? c) Not at all cascaded to woredas
- If not making use of the manual, with what guideline have you implemented the schemes?____

a.3) No of high technologies implemented so far

I. N.	Type of technology	No of schemes completed in each year						On progress
		2004	2005	2006	2007	2008	Total	
1	Shallow drilled well with hand pump							
2	RPS from gravity springs (at least with two public fountains)							
3	RPS from deep well/boreholes source							
4	RPS from motorized spring							
	Total							

- Are there any high tech schemes disaggregated by technology type which were planned but not implemented?____
  ____
- If any, what were the reasons for not implemented as planned? _________________
  ____

d) Approach in preparatory phase (project planning, application, study & design, appraisal and FA signing)

b.1) Planning (study and design)

- Who conducted site selection; study and design of the schemes (write the appropriate letter of the choice for the specific technology)?
  a) Woreda water office experts d) Zonal water office experts
  c) Regional water bureau d) others if any
  a) Shallow drilled well with hand pump__________________
  b) RPS from gravity spring source __________________________
  c) RPS from motorized spring source __________________________
  d) Piped schemes from deep well ________________________

b.2) Application preparation

- How communities were applying the project application (write the appropriate letter of the choice for the specific technology)?

A) Express only the need for a water scheme b) express the specific type of the technology for further study & design c) Comes with complete project application (with site selected and complete design report included).
  a. Shallow drilled well with hand pump__________________
  b. RPS from gravity spring source __________________________
  c. RPS from motorized spring source __________________________
  d. RPS from deep well ________________________

b.3) Appraisal

- Who appraised project applications for the specific technology at desk and field level?
  a) Shallow drilled well with hand pump__________________
  b) RPS from gravity spring source __________________________
  c) RPS from motorized spring source __________________________
  d) Piped schemes from deep well ________________________

- What was the % of community contribution used in the appraisal of high techs (disaggregated by technology type if any)?_______________________________________
  ____

b.4) Funding Agreement (FA) signing

- Who signed the FA? WASHCO with the WWT or any other?__________________________

b.5) Trainings

- Did the management body/WASHCO take training on how to implement the high tech using the CMP approach? ____
- If not why? ____

b.6) What were the more difficult issues in pre implementation/preparatory stage?

____
____
____
____

____

____

e) In project implementation (procurement & contracting, construction and fund management/disbursement) stage

c.1) Procurement procedure

c.1.1) How was the implementation/construction of the technologies undertaken (write the appropriate letter of choices for the specific technologies)?

- Purely by private contractors (excluding community contribution),
- Labor contract by private contractors, and material procurement & supply by WASHCOs (excluding community contribution), or
- Labor contract by local artisans and material procurement & supply by WASHCOs (excluding community contribution).
- If any other method, specify ____

  a) Shallow drilled well with hand pump__________________
  b) RPS from gravity spring source _________________________
  c) RPS from motorized spring source _________________________
  d) Piped schemes from deep well _______________________

c.1.2) Who advertised tender for the works?
a) WASHCOs b) Woreda WaSH Team c) Woreda water/finance office d) zonal water/finance office e) Water bureau f) others, specify

- Shallow drilled well with hand pump__________________
- RPS from gravity spring source _________________________
- RPS from motorized spring ____________________________
- Piped schemes from deep well __________________________

c.1.3) If Tenders are advertised by WASHCOs, what procurement procedure they used?
a) Government b) CMP high tech guideline c) Specify if any other procedure?____

____

c.1.4) If Tenders are advertised by other than WASHCOs, why WASHCOs did not advertise for each technology?

1) Shallow drilled well with hand pump______________________________
2) RPS from gravity spring source ___________________________________
3) RPS from motorized spring source ________________________________
4) Piped schemes from deep well ____________________________________

c.1.5) If the woreda, zone or region advertised, did they use the government procurement procedure?
Yes ( ) No ( ). If No what procedure did they use? ____

____

c.1.6) If Tenders are advertised by others than WASHCOs, did the WASHCO delegate formally?

- To whom did the WASHCO delegate? ________________________________
- Was the delegation made formally in writing? ____
- When was the delegation made? ____
- Does the delegation letter clearly state the delegated activities? ______________
- Were the reasons for delegation clearly stated in the letter? ____
- What are the most common reasons for delegation given by WASHCOs? ____ ____

c.1.7) If Tenders are advertised by others than WASHCOs, were WASHCOs represented in the Tender committee members for tender opening, analysis and approval?

Yes (   )   No (   ),

- If yes, who in the WASHCO members? ________________________________
- If No, why? ____

c.1.8) Who made construction agreement with the contractor for each technology?
a)WASHCOs b) Woreda WaSH Team c) Woreda water/finance office d) zonal water/finance e) Regional water bureau f) others, specify ______________________

1) Shallow drilled well with hand pump________________
2) RPS from gravity spring source ______________________
3) RPS from motorized spring source ______________________
4) Piped schemes from deep well _____________________

c.1.9) If Tenders are advertised by WASHCOs, what were the roles of other stakeholders? Such as WWT, woreda water/finance office, zonal water/finance offices, water bureau.

____
____
____
____

c.1.11) Was drilling of shallow wells batched/clustered for economics of scale?

Yes (   )   No (   ),

- If yes, how many wells per batch? __________________________,
- If the batching was per woreda, how many woredas per batch? ______________,

c.1.12) Who signed the agreement with the drilling company? a) Individual well WASHCO b) Specify, if others signed ____ c.1.13) If Tender advertisement, analysis, approval and contracting of the work was done by others than WASHCOs, what were the roles of the WASHCO in the process for each technology?

1) Shallow drilled well with hand pump___________________________________
2) RPS from gravity spring source _______________________________________
3) RPS from motorized spring source _____________________________________
4) Piped schemes from deep well ____

c.1.14) If only labor contracts were given to artisans or contractors, by whom (WASHCOs or sector offices/bureaus) and how (by tender or direct) the procurement of major construction materials/goods was made?

a) Pipes and fittings ____
b) Submersible or surface pumps____
c) Generators ____

c.1.15) Recording and reporting

- Are the daily community contribution recorded by WASHCO and reported to WWO? ____
- Are the actual community contributions valued & percentage from the total cost calculated? ____
- What was the average community contribution in % for the following technologies?
    - Shallow drilled well with hand pump______________
    - RPS from gravity spring source _______________________
    - RPS from motorized spring source _____________________
    - RPS from deep well _________________________

c.1.16) What are the more difficult issues in the procurement & contracting stage?

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c.2) Supervision of construction

c.2.1) Who was/is (permanently responsible) for the supervision of the work for each technology (write the appropriate letter of the choice/choices for the specific technology)?
a) Woreda water office b) Zonal water office c) Private consultant d) others (specify)

1. Shallow drilled well with hand pump______________________________

2. RPS from gravity spring source ___________________________________
3. RPS from motorized spring source ________________________________
4. RPS from deep well ____________________________________

If private consultant, who employed him/her? ______________________________________

c.2.3) What are the more difficulties in the supervision stage?

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c.3) Fund disbursement

c.3.1) Who transferred/made payments to the contactor or supplier of goods (write the appropriate letter of the choice for the specific technology)? a) WASHCO b) Woreda water office c) Zone water office d) Specify if any other

1) Shallow drilled well with hand pump________________
2) RPS from gravity spring source ____________________________
3) RPS from motorized spring source _________________________
4) Piped schemes from deep well ____________________________
5) Procurement of pipes & fittings ____________________________
6) Procurement of submersible/surface pumps _________________________________
7) Procurement of generators ____

c.3.2) If others than WASHCO made payments, what was the reason? ____

____

c.3.3) If others than WASHCO made payments, did WASHCOs delegate formally? ____

____

c.c.4) If others than WASHCO made payments, what was the role of WASHCOs in the payment (approval & effecting payments) process?

1) Shallow drilled well with hand pump________________
2) RPS from gravity spring source ____________________________
3) RPS from motorized spring source _________________________
4) RPs from deep well ____________________________
5) Procurement of pipes & fittings ____________________________
6) Procurement of submersible/surface pumps _________________________________
7) Procurement of generators ____

f) In project operation and maintenance management stage

d.1) Does the scheme have a management structure (WASHCOs) as per the regional proclamation for high techs? ____

d.2) How the tariff for the rural piped schemes (RPS) decided?

a) Based on affordability and willingness to pay assessment only ( )

b) Based on the tariff calculated for covering O&M management cost only ( )

c) By compromising the affordability and willingness assessment and the tariff required for covering O&M management cost ( )

d) Other ____

d.3) Who decided on the tariff amount? _______________________________________
____

d.4) Who employed operators, plumbers and tap attendants for RPSs? _______________
If not employed by WASHCOs, why? ____

d.5) Are the required O&M trainings given for the WASHCOs & employed technical staff?

1) WASHCOs ____

2) Plumbers ____

3) Water sellers/tariff collectors ____

d.6) What are the more difficult issues in the O&M stage?

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E) Recommendations of the people involved in the discussion

E.1) What is your overall view on the implementation practice of high tech water scheme using the CMP approach?____

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E.2) What do you recommend for the effective implementation of the technologies using the CMP approach? ____

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