


KEBELE WATER SAFETY PLANS

Federal Democratic Republic of Ethiopia
Ministry of Water Irrigation and Energy (MOWIE)

META

This booklet was developed in support of the introduction of Kebele Water Safety Plans (KWSP) in Ethiopia. The approach was developed by a team from MetaMeta in consultation with staff from the Ministry of Water Irrigation and Energy (MOWIE) and Community-Led Accelerated WASH (COWASH) and tested in communities in the Quyo Micro Watershed in Debremawi Kebele of Yilmana Densa Woreda of West Gojjam Zone of Amhara Region. The PowerPoints shown in chapters 2 through 8 are also available separately in Pdf on the website: http://www.cmpethiopia.org/ in A4 format to enable printing and collation into a PowerPoint poster.

Kebele Water Safety Plans

in Community-Led Accelerated WASH - COWASH

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1. Introduction

The KWSP approach aims to contribute to the important steps of the Ethiopian government to improve the water supply and sanitation coverage and functionality as well as good household level hygiene and sanitation as outlined in the WASH Implementation Framework (WIF), which promotes decentralized management of rural water supply schemes and sanitation systems. The main approach adopted under the WIF is that household clusters and other user groups (e.g. health posts, schools, churches, farmer training centres, mosques, and market associations) using the same water system establish a Water, Sanitation and Hygiene Management Committee (WASHCO) by electing members among the users to develop, implement and manage the WASH systems. WASHCOs are accountable to the communities they serve and to the Kebele Administration. The situation on the ground shows however that important challenges exist in terms of water supply and sanitation coverage and non or poorly functioning systems. Furthermore, important water quality and quantity problems exist as water may be contaminated and or the available water quantity may diminish at different points in the water supply chain from catchment to consumers.

Adding to this risk is that in many communities community members use different types of water systems, ranging from open water ponds, rainwater collection systems to protected wells with hand pumps and small piped systems, in parallel. The water use pattern may also differ considerably over the year as some sources may dry up and others may have to be paid for. Water availability and distance seem to be important in the choice of the water source, with water quality considerations being of much lower importance for most of the population. Also at management level water quality does not figure as high on the agenda as it should because of its impact on morbidity, stunted growth and mortality.

Current thinking about water safety has emerged towards a risk management concept embedded in water safety plans (WSP). This approach involves the assessment, prioritization and continuous management of risks to water safety from catchment to consumer (Water Safety Planning for Small Community Water Supplies, Step-by-step risk management guidance for drinking-water supplies in small communities, WHO, 2012 and the more recent WHO publication: Water safety plan: a field guide to improving drinking-water safety in small communities (Ricket et al., 2014). These guidelines provide guidance for the systematic assessment of possible risks in existing rural water supply systems by implementing sanitary inspections as needed and complemented by water quality analysis. The WHO guidelines and the training manual for Guided Learning on Water and Sanitation (GLOWS) are important resource materials for this KWSP guideline and need to be reviewed by those that want to apply this approach in rural WASH in Ethiopia..

1.1. Introducing the concept of Water Safe Kebeles

Adopting a system based water safety plan approach is not sufficient because community members in many Kebeles in Ethiopia use different types of water sources in parallel or at different times of the year. If in such a situation for example a water safety plan is made for a water supply with stand posts, this is not sufficient as a large part of the community may also use water from other (often polluted sources). Hence instead an

area based approach is needed as discussed in more detail in the WHO field guide and the GLOWS manual. This approach entails the assessment of the different water sources in a given area and the actual water use and related risks and the development of an action plan that improves the situation. The thinking is that it is essential to ensure that people have a safe water source for drinking and cooking but if needed can use water of lower quality for other uses such as cloth washing. With the Kebele being the lowest level of government available in Ethiopia it seem very relevant to explore these problems at Kebele level together with the Kebele WASH Team (KWT) and aim at developing a Kebele Water Safety Plan (KWSP). The steps involved in such an approach that have been tested in Debremawi Kebele are the following:

1. Introduction meeting in the Woreda to inform the Woreda management and Woreda WASH Team (WWT) on the approach and its importance. This includes selection of trainees, handing-over materials and reaching agreement on the process and the time woreda staff need to prepare themselves by using the Guided Learning of Water Supply and Sanitation (GLOWS) learning modules and this booklet. This process can be led by zonal/regional staff possibly with support from NGOs working in the area;

2. Two month facilitation of team learning of the Woreda trainees using the GLOWS modules and this booklet. This process requires trained trainers and facilitators which may include staff from the zonal and regional water bureau as well as from Technical Vocational and Education Training College (TVETC) and NGOs with presence in the area of intervention. If feasible it may also be considered to include some members of KWTs (Health Extension Workers (HEW) and Development Agents (DA) to have a larger group of actors available to guide the implementation of KWSPs;

3. A three day training of the Woreda trainees at zonal level particularly helping them to prepare for the facilitation of the KWSP process in Kebeles;

4. Introduction of the approach in Kebeles particularly informing Kebele management, KWT members and active WASHCO representatives with help of the PowerPoint Poster 1: ***Kebele Water Safety Plans*** (Chapter 2). This can be done for individual Kebeles or a meeting can be arranged in the Woreda inviting a few Kebeles as this may enhance the profile of the approach and better ensure availability of Kebele actors. In this step a map needs to be prepared of the Kebele with the water points and the main human settlements. Furthermore the initial intervention areas need to be selected and the assessments need to be planned. It is recommended at this stage to adopt a micro watershed approach to avoid having to deal with too many systems at the same time;

5. To implement the water supply risk assessments the Woreda team of two to three persons needs to work with the KWT and WASHCOs. This implies that the participants at Kebele level need to be briefed on the approach which can be done with help of PowerPoint Poster 2: ***KWSP for KWT and WASHCOs*** (Chapter 3) and perhaps also repeating Poster 1. At this stage sufficient experience and background knowledge is needed to be able to make the assessment. It is assumed that the GLOWS training and the external advice has equipped the Woreda staff

for this, but the Kebele actors will have less experience. Hence particularly the first micro-watershed assessment will need to be led by the Woreda staff, but by taken the KWT members along in the process they may prepare them to do for example the assessments in the next micro watersheds which then can be checked by the woreda team members (which requires less time). To support this process it will be helpful to include some additional training of KWT members using a selection of the other posters included in this booklet, choosing the ones that are relevant for the situation in the Kebele. With these posters more clarity can be given on the risks involved in different types of systems and about possible actions that can be taken to overcome the identified risks.

6. For each of the systems that is being reviewed a short report needs to be prepared with help of the format for the respective system shown in chapters 3 to 8. To facilitate the assessment of bacteriological contamination a sanitary inspection checklist will be helpful (see Annex 1)..

7. Preferably the risk assessment reports are reviewed by colleagues from the Woreda Water and Health Office and experienced external advisors for example from the Water Bureau. This feedback can help to make the risk assessments more complete and may also give some ideas of necessary actions

8. With the completed risk assessment reports of the individual systems and the summary report of all systems in the selected area (micro watershed), a meeting needs to be organized with the KWT and the WASHCOs to obtain feedback and develop action plans. The discussions may require also a visit to some of the water points to possibly collect additional information and be more specific about possible action

9. The actions are combined into an action plan report which includes actions at system, micro watershed levels, as well as at Kebele level. Before discussing this report with the Kebele it is important to obtain feedback from colleagues from the Woreda Water and Health Office and experienced external advisors for example from the Water Bureau.

10. Reporting back to Kebele management and WASHCOS and initiate the implementation of action plans as well as the assessment of the other areas of the Kebele where a similar process needs to be adopted, possibly with a larger role of the KWT

11. Furthermore monitoring and support arrangements need to be agreed upon. This includes both a role for the KWT who can support and monitor the actions of WASHCOs and from the WWT who can support and monitor the role of the KWT.

1.2 Preparing to adopt the approach

To be able to implement the KWSP approach it is important that the Woreda staff is well prepared. A good way to prepare for this is to follow the GLOWS course: Learning about Community Water and Sanitation Assessments and Action Plans in Ethiopia. This course provides a very good basis for Woreda staff to learn about water safety plans and to better support WASHCOs and communities to mainstream water safety planning.

The GLOWS course follows an innovative approach of guided joint problem-based learning at the place of work. Participants in the course obtain a set of paper based training modules. These self-learning modules comprise key information, specific field assignments with 'learning-by-doing' exercises and a question and answer section where participants can check their own progress. The GLOWS training has first been implemented in SNNPR and subsequently in Western Haraghe and Afar. Results are encouraging because already during the training trainees were able to encourage local action including for example the recuperation of abandoned wells, replacement of water committee, repair and improvement of piped water supplies, cleaning school compound etc.

The preferred approach to the course is to establish a group of trainees from a Woreda who agree with Woreda management that they will take this training as a group and will work at least half a day or a day per week on the modules, under guidance of staff who has been trained to facilitate the course. A second part of the preparation is the review of this booklet and to practice with the different PowerPoints and explaining the content to colleagues. The advantage of this approach is that there is big difference between reviewing information and explaining such information to others. Furthermore the PowerPoint Posters can be taken to the community and can be used there for explanation as well.

1.3 Working with the KWT and the WASHCOs

An important part of the approach builds on working with the KWT and with WASHCOs. This may not be easy as members of the KWT may already have a considerable workload, but the water safety plan activities are very much in line with the activities they are already undertaking such as the hygiene promotion activities of HEWs and the catchment improvement actions by DAs. It will need a discussion however at the Woreda and Kebele level how to best take the approach forward and what resources are available to sustain the action.

Box 1. Role of WASHCOs according to the WIF (FDRE, 2011)

- Plan and promote WaSH activities (e.g. advice water handling)
- Mobilize user resources (skills, funds and in-kind contributions)
- Manage funds, procure spare parts and services (construction and O&M)
- Manage and maintain facilities
- Seek training (bookkeeping, repairs etc.), and assistance (large repairs, etc.)
- Complete and submit inventories and (financial) reports
- Develop mechanism of addressing the disabled and marginalised groups of the community (e.g. elderly people, female headed households)
- Take action to become a legal entity (allows for bank account and loans)
- Prepare and implement water safety plan

Another key component is to work with the WASHCOs which may be challenging as these may have received limited training and may not even be aware of the role they are supposed to play. It may therefore be particularly relevant for follow-up action to explore how WASHCOs see their role (by asking them) and then compare their views with the ideas set out in the WIF (see box 1). What is likely to emerge from that discussion is that they are not really sufficiently equipped for their role and will need additional training and support including the development of simple monitoring formats as explained in the GLOWS manuals.

1.4 The posters included in this booklet

In total 7 PowerPoint based posters are included in this booklet shown in chapters 2 through 9. The posters address the following topics:

1. Introduction of Kebele Water Safety Plans (KWSPs) which can be used to brief the Woreda management and Woreda staff as well as the Kebele management and the KWT. The main idea is that the importance of water safety plans is understood, the approach is agreed upon and to make a sketch and establish key data of the Kebele where the intervention will be planned.
2. Introduction of KWSP to KWT and WASHCOs which can be used in a session with these actors to explain the approach, agree on the area where the first assessments will be made and discuss data that are readily available for the assignment.
3. WSP of wells and pumps which provides an overview of potential risks and possible remedial actions in wells and pumps. This can be used to explain the risks that may be present and to show examples of what information needs to be reported and what possible actions can be taken. This PowerPoint can be used to explain problems and solutions to the KWT but also to WASHCOs in areas where open wells and wells with pumps exist.
4. WSP of springs which provides an overview of potential risks and possible remedial actions in springs which shows similar issues as mentioned for PowerPoint number 3 and can be used in areas where springs exist.
5. WSP in piped supplies which provides an overview of potential risks and possible remedial actions in piped systems which shows similar issues as mentioned for PowerPoint number 3 and can be used in areas where piped supplies exist.
6. Alternative options for safe water supply which gives suggestions for alternative water treatment options. This PowerPoint can be used to discuss risks in water handling and storage with KWT, HEW, WASHCOs and users to explain some options for household water treatment
7. Financing of interventions including financing by users, but also seeking other funding options. This PowerPoint can be used with the KWT and the WASHCOs if additional funding is needed

1.5 Formats for sanitary surveys

When visiting a water supply system, a well, a handpump, a piped supply, or a water container in a house, it is often possible to spot possible deficiencies that may lead to the pollution of the water in the system. Buckets to collect water may be left on the ground next to the well, surface water may leak into a storage tank because it is cracked, and people may take water out of the container touching the water with their hands. These are all examples of possible contamination which you can spot yourself. This type of assessment is the basis for the sanitary inspection or sanitary survey, which is a technique that records visible problems, enabling fieldworkers to assess the possible risk of contamination in a specific water system. A sanitary inspection (sanitary survey) consists of a systematic review of possible hazards that may occur in the water supply chain from catchment to consumer (catchment area, water source, water supply system and household water storage and use) (Lloyd, B. and Helmer, R. 1991). Specific formats are presented by WHO that can help to make the assessment as shown in Annex 1. An important limitation of these checklists is that they suggest a ranking of the risks which may be misleading as some risks are more severe than others. Just imagine that you

find a crack in the well head where polluted water infiltrates. If that is the only risk than the WHO formats suggest a low risk whereas there is direct contamination which implies a high risk. So the suggestion is that the checklist may be helpful to identify risks, but the severity of these risks should be assessed case by case. This approach is indicated in Table 1 which is less detailed, but may be sufficient to give a fair indication of the main risk levels that exist. Furthermore the checklists in Annex 1 will help you to ensure that you do not miss possible risks.

Table 1. Worksheet for a summary sanitary risk assessment of a water supply system

Sanitary risk	High	Mod	Low
The micro watershed area (risk is high if sources of pollution can directly enter water source, area is poorly protected and has a lot of human intervention)			
The water source (risk is high if (polluted) water can infiltrate directly in source, moderate when there are puddles etc., but no sign of direct infiltration and no high reported incidence of diarrhea)			
Water distribution (risk is high if distribution lines pass through poorly drained areas, or close to sewers etc. and water supply is intermittent)			
Water transport and storage (risk is high if containers are not cleaned and direct hand contact with the water is made)			

1.6 Reporting format

A format is shown in Annex 2 that can be used to report about the assessments of the different water supply systems. The main idea behind the format is that it can be made into a PowerPoint based poster of preferably not more than 12 slides. These slides can be printed out in A4 format and then can be collated into a poster (3 pages wide and 4 in heights) that can be taken to the Kebele to help guide the discussion with the KWT and the WASHCOs. Another format is included in Annex 3 which summarises the situation for the micro watershed and later on for the Kebele as a whole, which constitutes the KWSP as it gives an overview of the main problems and main actions that need to be taken.

2. Kebele Water Safety Plans

- Water is very important for families living in the community, but they may have important problems in terms of quantity and quality
- These problems need to be explored and a plan needs to be developed to improve the situation and reduce the reduce water supply related risks
- The Kebele is a very suitable entry point for helping communities together with the Woreda WASH team to find problems, and develop Water Safety Plans for the different systems and to bring these together in a Kebela Water Safety Plan (KWSP)

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What type of water sources are communities using?

Often people use different water sources (particularly in the rainy season) for:

- Drinking water and cooking
- Bathing
- Gardening and watering animals



What water problems may people encounter?

In practice we find many problems including:

- Non- functionality (often due to lack of preventive maintenance and management problems)
- Poor performance (low yield, long waiting lines)
- Sources drying up (seasonal ponds, but also catchment problems)
- Water is polluted (in the system or by users)

Broken systems, inadequate repairs

Taking water from polluted sources

Essential to look into this problem

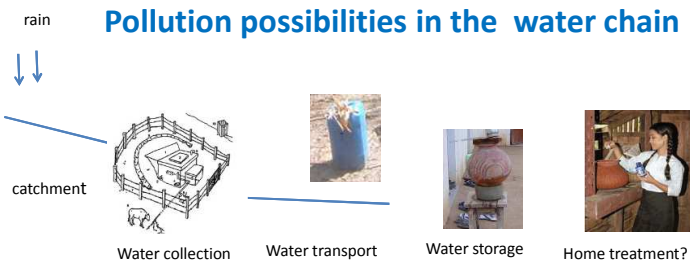
To help communities to have access to sufficient water and of adequate quality for the purpose for which it is used we need to look into the problems people have with the water systems they use and the way they handle the water (including at home)

Each of these systems may involve health hazards/risks but also technical, operational, organizational or financial problems so we need a detailed analysis to be able to make **Water Safety Plans (WSPs) for each system and use these to develop the Kebele Water Safety Plan (KWSP)**

What are the key components of a KWSP

1. A comprehensive assessment of the water quality and quantity risks of the existing water systems and the way they are being used
2. An analysis of the quality of the systems, their operation, maintenance, management and monitoring
3. An action plan for the community or Kebele describing actions to be taken to overcome the problems that were identified and the responsible actors.

Pollution possibilities in the water chain



For our analysis we talk about the water chain because water may be polluted at any part from catchment to consumption and quantity may also be affected. Hence we need to look for problems in all parts of the water chain

The main tools we use:

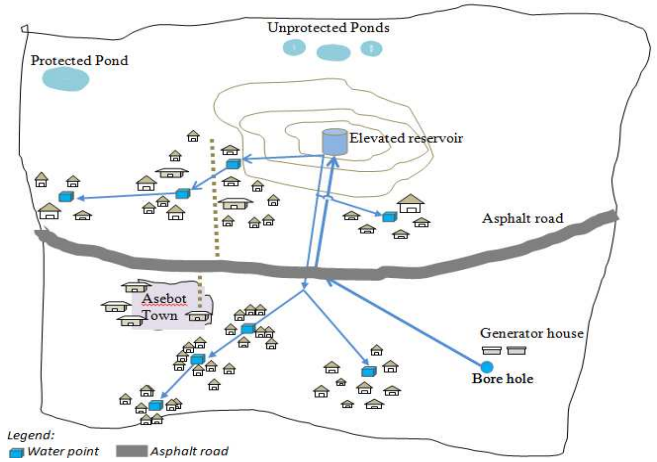
- A **systematic problem analysis** with the Kebele WASH team (KWT), WASHCO members and others of all water points, and their use
- **A sanitary survey** which is a systematic search for, and evaluation of, existing and potential microbiological and chemical hazards that could affect the safe use of a particular water supply system
- **Checking quality problems** by asking HEWs about incidence of diarrhea (wet and dry season) and (if feasible and only when needed) water quality testing

Water with a very high pollution risk

Exploring risks from catchment to use

Is water storage safe?

Result 1: a map of the water systems in Kebele

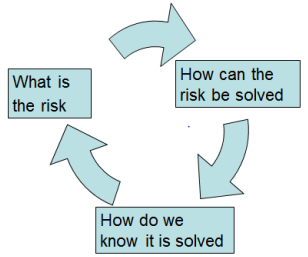


Result 2: A short KWSP report

Name Kebele / group of communities	
General information	Name, popolution size, occupation, number of communities, type of water systems, water access and use; some data on schools
Specific information on each water supply	Details of system, technical quality, water quality & quantity, continuity, cost
Specific information on each water supply	Technical problems, management and financial problems,
What are risk in water use	Water collection, transport and storage
What are important actions to take	What actions are needed, who will take the action and when

A team is needed for the analysis and the plan

For each of the water sources and systems we need to know about the risks in relation to the way the water is used and to identify possible solutions



To be able to do this we need **a KWSP team** that will explore the situation together with the Woreda WASH team based on discussions with WASHCOs and users as they have important information about their water quality and quantity and possibly other problems (management, finance, conflicts, etc.)

Priority actions

- Once the problems are assessed and options for solutions are identified it will also be clear which activities can be taken forward by users and WASHCOs directly and which activities need external support
- At the Kebele level this may result in clear identification of priorities which then can be proposed to Woreda level in the form of a KWSP

Steps needed to take process further

- Agree about the importance of KWSPs and about who will take overall responsibility
- Form a team in the Woreda that will lead the process
- Form KWSP implementation teams of some 4 to 6 members that will work with the Woreda WASH team
- Implement the KWSP assessment (possibly in stages by adopting a micro catchment approach)
- Report back and develop action plans with WASHCOs, HEW and other strategic actors
- Report back to Kebele and Woreda and if needed prioritise important actions
- Monitor the implementation of actions

3. The Kebele WSP team

Water is essential for the community, but they may have important problems in terms of quantity and quality, but also in O&M, (financial) management and safe water handling and use

To overcome these problems a Kebele WSP team is formed (different actors eg WASHCOs, HEW, school teacher etc.) to assess the situation with support of the Woreda Water Office and the community and particularly the actors directly involved in the management and operation of systems and to identify actions to improve the situation

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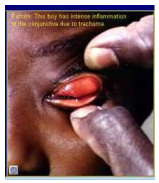
Why do we need sufficient safe water?

- People need enough water for drinking, cooking, washing, bathing but also watering animals and gardening;
- Part of this water (particularly for drinking and cooking) needs to be of very good quality, whereas for other uses a lower quality is sufficient

Even if this water is from a safe source it may not be safe to drink as the cloth may be dirty



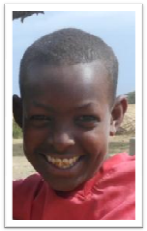
Enough water for personal hygiene is essential to avoid diarrhoea and for example eye disease

Daily water use (WHO)
Drinking/cooking 5 l/p/d
Other uses 15 l/p/d

Rural water supply in Ethiopia: 15 l/p/d from an improved water source within 1.5 km (4 jerrycans/family of 5/day)

Can water contamination cause disease?

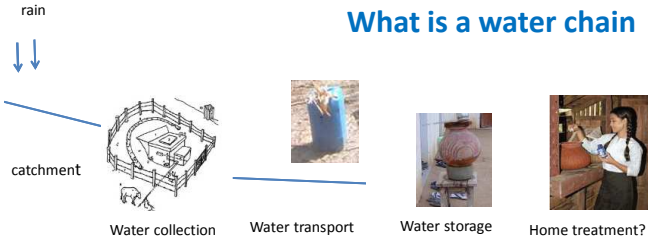
- Bacteria (related to human and animal feces) may be ingested by drinking water or eating poorly washed vegetables and this may cause for example diarrhea
- Chemicals (Fluoride), but also dangerous products used against plagues in agriculture



Dental Fluorosis
Caused by excess Fluoride

On average 38,500 children under five die every year in Ethiopia because of diarrhoea
(Unicef, 2013)

What is a water chain



- Water may be polluted at any part of the water chain (from catchment to consumption) and quantity may also be affected
- Hence we need to look for problems is all parts of the water chain

Role of the Kebele WSP team

- Assess the water supply situation together with Woreda Water Office staff and identify main risks (can be done in phases by using micro catchment areas)

- Develop a brief report on the different systems and the problems that are involved
- Use the report to discuss risks with users and WASHCOs and identify and agree upon actions to improve the situation
- Complete report, discuss with Kebele WASH Team and agree on specific actions for Kebele level
- Monitor and facilitate the implementation of the actions that were agreed upon

Lets look at the map and choose area

Lets also look at the data we have

Item	Information
Name	Fayoo Kebele (Mieso Woreda)
Population size	2695 (estimated)
Main occupation (s)	Agro-pastoralist
Type of water supply systems	• Borehole (motorized) with 3 WP • Three seasonal ponds (four month)
Water access (% with 15 litres/p/d < 1.5 km)	22% (many have to walk > 1.5 km; hence no official access)
% population using improved water sources	100% use scheme during dry season less during wet season
Schools	No water facilities

Now we need information on the systems

Name Kebele / group of communities / micro catchment	
Specific information on each water supply	Details of system, technical quality, water quality & quantity, continuity, cost
Specific information on each water supply	Technical problems, management and financial problems,
What are risk in water use	Water collection, transport and storage
We will use this information to make a brief report and use that to identify and agree upon the necessary actions with users, HEWs, WASHCO etc.	
What are important actions to take	What actions are needed, who will take the action and when

Main steps of KWSP team (1)

- Ensure that we have listed all the water sources used by communities in the micro catchment (Name, location, type of system, supply hours, type of use in wet and dry season)
- Assess systems (technical quality, water quantity & quality) and identify potential risks of: contamination, breakdown, flooding, user conflicts, management and financial problems
- Prepare report to discuss with WASHCOs, users etc.

Main steps of KWSP team (2)

- Identify for each system the main remedial actions (system repair, preventive maintenance, strengthen management, training, informing users about water handling or about household water treatment)
- Establish priorities to ensure that access to safe and sufficient water is guaranteed (in consultation with Woreda)
- Develop action plan for the systems and for the Kebele that indicates the (priority) actions, the actors, other collaborators, the required resources and the date of completion)
- Discuss the plan with Kebele leaders and the Woreda Water Office and
- Initiate the plan and monitor its implementation

Relation with users

- Users may have important information for the KWSP
- Users are clients (they pay) and their satisfaction needs checking
- Users need to be informed in a transparent way
- If a water source is not (no longer) safe users need to know about household water treatment options

User complaints are very important information to improve system performance

External support

For the development of the KWSP external support is available from the Woreda Desk

For the implementation of the KWSP and the WSPs for the different systems many improvements can be made by WASHCOs / community members but for others external support may also be needed

4. WSP for wells and pumps

Groundwater is abstracted through shallow and deep wells with our without pumps

Groundwater is a good water source as it may be free from bacteriological contamination and often it does not contain high levels of chemical pollution

Unfortunately this is not always the case and therefore it is essential to carefully assess the situation

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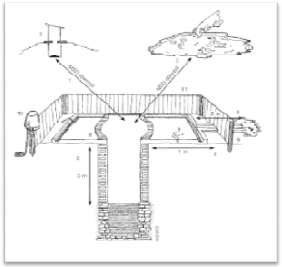
Risks in open shallow wells

Shallow wells usually include water that has infiltrated nearby which may create a risk

Look for risks around the well that may cause bacteriological pollution such as nearby latrines or unlined ponds; also chemical pollution may occur from agricultural practice or Fluor

A common problem is that pollution is introduced through dirty buckets, ropes etc.) and cracks in the headwall of the well; Another problem is that wells may dry up in the dry season



Some of these risks are difficult to overcome and may require household water treatment or even relocating the well changing it into a well with pump

Risks in open shallow wells (2)

- Nearby infiltration of pollution (latrines); if above well at least 25 metres (!!! check water quality!!!)
- Direct infiltration (holes)
- Direct pollution from dirty buckets, and ropes
- Chemical pollution from nearby fields or already in the ground (Fluor)

- Well may dry up in dry season

Mitigation actions
- Remove the nearby sources of infiltration
- Repair or replace the head wall
- Cover the well
- Put extraction device (rope & bucket, rope pump (both some water hand contact), other pump)
- Introduce household water treatment

- Wells that dry up still are good supplementary source, but partial alternative is needed; options: deepening, (hand)drilled well, other

Risks in shallow wells with pumps

Shallow wells with pumps have a lower risk as there is no direct water contact unless pump allows dirt, animals, or water entering the well; Other risks related to shallow well are the same

Check with WASHCO if water can infiltrate through the pump or apron which for rope pumps is more easy

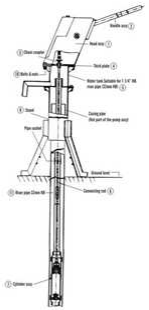
Risks in deep wells with handpumps

Deep wells usually contain water that is infiltrated at a different location and may have a low risk

The bacteriological risk may be low unless water leaks back into the well; chemical pollution however may be a problem (Fluor, agricultural practice); Check if water quality has been tested and explore where the ground water comes from (may be from quite far).

Water quantity may also be an issue. Check with the community if they have water problems and if it for example takes longer to pump water, which may be the result of poor maintenance or a falling water table .

Testing of chemical water quality may be needed



Risks with rope pumps

- Apron being below ground level
- Hand contact with rope
- Contamination during repairs
- Frequent and late repairs
- Lack of water for part of the year

Mitigation:

- Ensure good apron above ground
- Avoid hand contact with rope
- Disinfect after repairs
- Household water treatment
- Take action against producer if quality is poor

If water is lacking for part of year find complementary source

Risks with other hand pumps

- Apron allowing infiltration
- Hand contact with water or funnel
- Contamination during repairs
- Poor maintenance and late repairs
- Lack of water for part of the year
- Too many users (long waiting lines)

Mitigation:

- Ensure good apron repair cracks etc.
- Avoid hand contact with water
- Disinfect after repairs
- Household water treatment
- Improve preventive maintenance
- Introduce monitoring
- Find (construct) additional water point(s)

Important to explore short and long term water security (Woreda Water Office)

Short and long term water security

Groundwater is rainwater that has infiltrated into the ground and this may take place nearby (shallow groundwater) or at a larger distance. Less water may infiltrate due to lower rainfall, but also due to changes in the catchment area, which also may affect water quality. An indication of problems may be the lower discharge of pumps in the dry season suggesting a fall of the water table.

Mitigation:

Is not an issue for an individual community; it requires catchment management and improvement

Woredas and Water Bureaus need to explore changes in catchments

Basic community water supply data

Registering these data is the first step of the KWSP

Name	Dadeche community
Population	Some 2000 population with very limited grow
Occupation	Mixed Farming
Type of water supply systems	• 7 Springs including 4 with reservoir and (broken) taps • River and reservoir for livestock and domestic use • 1 Borehole with handpump
Water access	Most Households can access water within 1.5 km
% population using improved water sources	Some 80% of community uses protected springs or handpump but springs have a low production in dry season; and handpump also has problems
Schools	No water supply; no water storage facilities
Health centre	No water supply; no water storage facilities

Assessment: deep well with handpump

System 1	Borehole with handpump
Details	Constructed in 2002 E.C (government fund); borehole depth 100 m; pump depth 30 m. Apron with drainage; India mark 2 pump
Technical quality of system	Three years old; lacks maintenance (leaking foot valve (4 strokes to start water flow); leaking cup seals (users indicate that it takes longer to fetch water); loose nuts; fence is broken)
Water quantity	Users have to wait on average over one hour to fetch water (this may be improved by repairing the pump, but may not be sufficient)
Water quality	Good taste, no odour; no turbidity; no sign of fluorosis; sanitary inspection showed a risk as well cover is cracked; yet a risk exist during collection (dirty funnel and containers), transport and storage; HEW indicates high incidence of diarrhoea at start of rainy season
Continuity	System unlocked during 8 hours/day; in dry season waiting times increases (possibly due to falling water table).
Cost	People pay 0,5 Birr per 20 litre to caretaker when fetching water; they do not get information and are suspicious; People limit water use because of cost using alternatives (rainwater, ponds etc.) if possible

Short and long term water actions (1)

	Technical interventions	Actor	Before
1	Contract mason to repair apron and improve drainage of spill water to avoid infiltration	WASHCO	May 8
2	Organize repair of fence (with user support)	WASHCO	May 8
3	Contract mechanic to repair the pump	WASHCO	May 8
4	Recheck discharge and waiting time after repair; if not sufficient then approach Woreda Water Office (WWO) to learn about options for additional water supply	WASHCO	May 8
5	Explore option to test bacteriological water quality	WASHCO	May 8
6	Ask WWO to look into the possibility that water table is falling and if this requires actions in the catchment area	WASHCO	June 1

Short and long term water actions (2)

	Other interventions	Actor	Before
1	Inform users of current risk and advice them about safe water handling and household water treatment (chlorine, solar disinfection)	HEW	May 1
2	Establish maintenance and monitoring system seeking support from WWO (simple format)	WASHCO	May 8
3	Review reporting by caretaker and consider the need for additional training	WASHCO	June 1
4	Report to community on income and expenditures	WASHCO	June 1
5	Explore options with users to prioritise handpump water for drinking promoting use of other sources for other purposes to reduce waiting time	WASHCO	July 1
6	In case of long queues explore sanitary risk as open field defecation may be practiced; if so make a plan to build latrines and urinals (male/female)	WASHCO with HEW	July 1

5. WSP for springs

Groundwater can also be available in the form of springs

Groundwater from spring is a good water source as it may be free from bacteriological contamination and often does not contain high levels of chemical pollution

But unfortunately this is not always the case and therefore it is essential to carefully assess the situation

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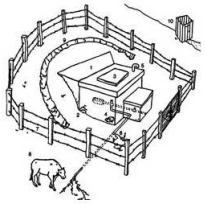
Risks in springs (1)

Springs can be a great source of water but also may entail important quality and quantity risks

Look for risks around and particularly above the spring that may cause bacteriological pollution such as nearby latrines or unlined ponds; also chemical pollution may occur from agricultural practice

A common problem is that springs are not well protected and may be affected or even destroyed by runoff water that is not properly drained.



(Source WHO, 1977)

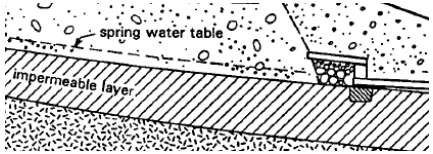
Some of these risks require simple measures, other are more difficult but remember never block the flow of a spring as it may disappear

Risks in springs (2)

Springs often are capturing shallow groundwater; hence pollution risks depend in part of depth of soil cover

The bacteriological risk may be low if the spring is connected to a confined aquifer (but chemical contamination may be an issue). Or in case of a shallow spring if no sources of contamination above the spring have been detected. One indication of problems may be odour or turbidity problems. Also you need to check with the HEW and the community they have outbreaks of diarrhoea for example at start of rainy season and whether the spring is providing sufficient water throughout the year; in case of problems water quality needs testing.

Springs may be tapping a confined aquifer or may be unconfined (shallow) as shown here



Risks in unprotected springs

- High risk of pollution because of direct runoff and contact with the water by users (people and animals)
- Possible infiltration above the spring (latrines, pools), and pollution with chemicals from agricultural practices above the spring
- Spring may reduce in flow or dry up in dry season

Mitigation actions
- Turn the spring into a protected spring; remove sources of infiltration
- Divert direct run off by making a drain above the spring
- Use the spring only for other water uses (not drinking and cooking)

Increase flow by improving infiltration in the catchment area that feeds the spring

Risks in protected springs

Protected springs may be at risk because:
- Pollution may infiltrate from latrines or cultivation above the spring or through cracks in the spring box or reservoir
- Surface runoff is not diverted and may threaten to undermine structure

- Flow may reduce in the dry season (long waiting times)

Mitigation actions:
- Remove source of pollution (latrines, agricultural practice)
- Avoid direct infiltration in spring box and reservoir and divert runoff

Improve water availability:
- Improve water infiltration in catchment area
- Enlarge or built water reservoir
- Maintain the reservoir and keep it closed to avoid mosquito breeding

Risks in springs with piped distribution

Springs may also be connected to a piped system which for examples takes the water to one or more tapstands. I such cases additional risks may apply related to the pipes and the tap stand

Tap stand connected to spring

- Pipes may leak and loose water hence occasional checking for water loss is needed. It may also imply a risk of contamination if pipes are not continuous under pressure
- Taps may be leaking

Mitigation:
- Ensure that pipes are well protected and are checked for leakage
- Repair pipes and taps as needed
- Ensure that pipes are under pressure
- Test water quality and if needed advice on household water treatment

Short and long term water security

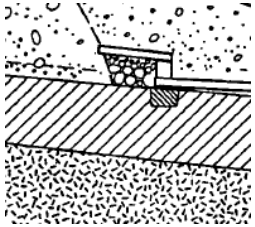
Water in springs is rainwater that has infiltrated into the ground either close by (above the spring) but may also happen at larger distance (confined spring). Water infiltration may change due to lower rainfall, but particularly as a results of changes in the catchment area, which also may affect water quality. An indication of problems may be the lower discharge of springs in the dry season.

Mitigation:

Requires catchment management and improvement which may require joint action of different actors and may affect people with land above the spring

Woredas and Water Bureaus need to explore changes in catchments

Key elements of springs



The water table from were water is captured and the (earth covered) spring box

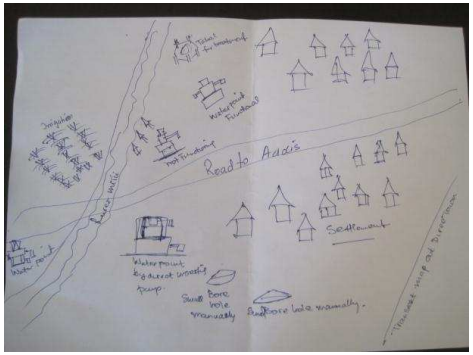
The reservoir which needs an overflow that is lower than the spring outlet to avoid blocking the flow of the spring

Both structures need to be watertight and need to be protected by diverting the surface flow to avoid that the structures are washed away

Basic community water supply data

Registering community water supply data as shown in the poster: wells and pumps is the first step of the CWSAP; It is also essential to have a good map of the situation.

Location of springs may be a special problem as they may be far away for some households. This may imply that it needs to be checked if tapstands can be connected to the spring or if other water sources need to be developed to keep distance to water source reasonable



Assessment: Protected springs

System 1	Protected spring with reservoir
Details	Constructed in 1995 E.C (government fund); spring box, pipe and reservoir with one tap which is located quite high in the reservoir
Technical quality of system	Lacks maintenance (cracks in concrete; damaged cover, leaking tap, no proper diversion of runoff; no drainage of water collection area (muddy) and no fence; reservoir has mud deposit.
Water quantity	Spring is delivering 1 l/s Users have to wait on average over 30 minutes to fetch water
Water quality	Good taste, no odour; no turbidity; no sign of fluorosis; sanitary inspection showed a risk as spring box, reservoir and manhole cover are cracked; also a risk exist during collection, transport and storage; HEW indicates high incidence of diarrhoea at start of rainy season
Continuity	System open to users; in dry season waiting times increases due to lower discharge and more users.
Cost	People do not pay for water

Short and long term water actions

	Technical interventions	Actor	Before
1	Contract mason to repair spring box and reservoirs and improve drainage of spill water	WASHCO[a]	May 8
2	Organize repair of fence (with user support) and of cleaning and disinfection of the reservoir	WASHCO	May 8
3	Repair tap	WASHCO	May 8
4	Check discharge and waiting time and discuss options for catchment improvement with Woreda Water Office	WASHCO	May 8
5	Explore option to test bacteriological water quality	WASHCO	May 8
a	First step is for the community to elect the WASHCO (which may comprise of several members of the voluntary group that was formed		May 1

Short and long term water actions

	Other interventions	Actor	Before
1	Formally establish a WASHCO	Kebele leaders	May 1
2	Inform users of current risk and advice them about safe water handling and household water treatment (chlorine, solar disinfection)	HEW	May 1
3	Make an analysis of O&M and repair cost and establish a tariff (with support Woreda Water Office)	WASHCO	May 8
4	Establish maintenance and monitoring system seeking support from Woreda Water Office, (simple reporting format)	WASHCO	May 8
4	Review reporting by caretaker	WASHCO	July 1
5	Report to community on income and expenditures	WASHCO	Sept 1

6. WSP for piped supply

Most piped water supply systems in Ethiopia use groundwater from deep wells

Groundwater is a good water source as it may be free from bacteriological contamination and often it does not contain high levels of chemical pollution

Unfortunately this is not always the case and therefore it is essential to carefully assess the situation

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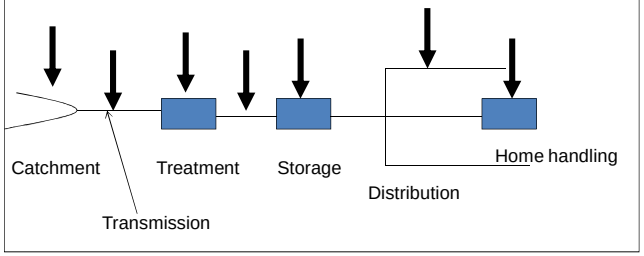
Hazards from catchment to consumer

In a piped supply all components need to be checked for possible risks



Risks in the catchment area

- Most small piped supplies in Ethiopia use groundwater as their water source. The bacteriological risk may be low unless water leaks back into the well; chemical pollution however may be a problem (Fluor, agricultural practice); Check if water quality has been tested and explore where the ground water comes from (may be from quite far).
- Another problem may be the groundwater table which may be falling. Community members may give you an indication that pumping takes longer but this may also be caused by lack of maintenance

Try to find out if water quality has been tested and where the groundwater comes from and whether this implies quality or quantity risks

Mitigation in the catchment often is beyond the individual community and needs Woreda level interventions

Risks in the pumping unit

Boreholes may not be well protected, do not have an apron and may allow for contamination by dirty water, dirt or small animals and may even allow seepage (infiltration) along the well casing

Electricity cables are often not protected .

Check the system carefully for any risks of contamination, and other risks (electricity) and lack of maintenance (corrosion)

Mitigation can include temporary covering of the well with sheets (see picture), but a more permanent solution should be established

Risks in the power supply (generator)

Whereas this risk is not directly related to water quality it may have an important bearing on water quantity. Burnt pumps and worn out generators are quite common and may lead to long supply interruptions

A new generator but already cracks are appearing in the base and the location of the generator is not well protected.

To ensure a long life span it is crucial that the installation is done properly. In this case we see problems that need to be remedied including an analysis of the concrete on which the system is placed as well as improvement of the housing

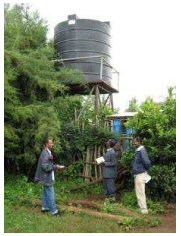
Another crucial action is to establish a good maintenance system to ensure sustainability and a monitoring schedule to track performance

Risks in water storage

Water can be stored in overhead tanks or ground tanks. Both may involve water quality problems die to contamination by infiltration of water or access by animals and tanks may be leaking

Check carefully for leakages; Fill tank with all valves closed and exploring possible drop in water level after one hour or more; you can also use this exercise to test pump discharge by measuring time it takes to fill the tank; operator also may be able to tell if it takes more time than before

Also check if tank is cleaned / flushed at times



Remedial action: Repair, clean and disinfect tanks; Check pump if water production is low or has reduced over time

Risks in distribution network

This is an important risks which is larger when supply is intermittent. Leakage and illegal connections may create considerable water loss and may lead to infiltration of contaminated water

Explore if pipes pass poorly drained areas or close to latrines / septic tanks and find other problems

Check leakage (eg water drop in storage tank with all taps closed

Leaking taps generate water loss and show poor maintenance

Remedial action: Make Inventory of all problems and develop action plan and inform users of possible risks suggesting household water treatment

Risks in water collection and transport

Water may be contaminated during collection, transport and storage

- Hand contact with water and dirty funnels or tubes may contaminate water
- Dirty containers may also be a source of pollution in transport and storage
- Poor drainage of tap stand creates risks as well

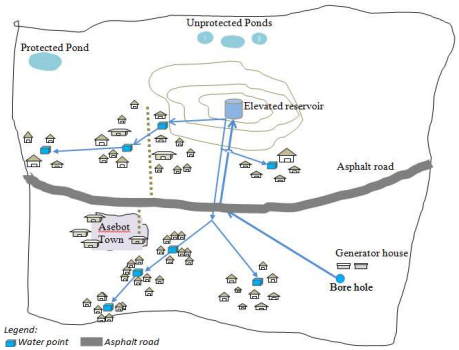
Explore with HEW if diarrhoea is an important problem and what information has been provided to households about safe water handling

Remedial actions: check if water is safe at the source and if feasible check quality in some households (also to show the risk to users). Then explore if safer handling is possible or that home treatment needs to be recommended (particularly for young children and elderly people)

Basic community water supply data

Registering community water supply data as shown in the poster: wells and pumps is the first step of the CWSAP; It is also essential to have a good map of the situation and the system.

Map needs to include main components of the system (borehole with pump, generator, storage tanks, pipe lines, distribution network, tap-stands, house connections), but also main regulation valves. Also good to check and mark special risk areas were pipes cross (marsh land, poorly drained areas etc., and any risk you have identified; location of schools is useful to see distance to waterpoints



Assessment: Piped supply

System	Motorized scheme with 1 borehole
Details	Constructed in 1995 E.C (government funds) 1 reservoir (100 m^3), depth borehole 130m; pump depth 90m; 8 WPs, Pump production 22m^3/hr (takes 4.5 hrs to fill tank with outlet closed)
Quality of system	System not working for one month. Lack of maintenance, poor repairs, important leakages; 2 WP never worked (1 km pipes stolen); 3 defunct for 3 months; System needs indepth analysis
Water quantity	While system was working, 2 - 8 jerry cans (dry season) and 2 - 4 (wet season) collected per household/day. Water use may be restricted because of cost and queuing (very long in dry season)
Water quality	Good taste, first flow shows turbidity (probably water infiltration) no sign of fluorosis; sanitary inspection showed no risk in borehole and pump, but high risk in distribution system and during transport and storage (same jerrycans for pond water)
Continuity	Severe discontinuity; when working 6 hours of supply
Cost	10 cents/20 liter jerrycan initially now 60 cents; users complain also for not having information (accounting not clear)

Short and long term water actions

	Technical interventions	Actor	Before
1	Contract mechanic to check the generator and the pump, carry out maintenance and check what repairs may be needed	WASHCO [a]	May 15
2	Check performance of pump and generator (production, fuel consumption for few days)	Operator	May 8
3	Organize repair of tap stands as many are leaking	WASHCO	May 15
4	Request a detailed analysis of the whole system by the Water Bureau as system needs repairs; good to also include option for water storage at tapstands	WASHCO	May 8
5	Explore option to test bacteriological water quality	WASHCO	May 8
6	Ask WWO to look into the possibility that water table is falling and if this requires actions in the catchment area	WASHCO	June 15
a	WASHCO has conflict with community, is not properly reporting and will need to be replaced as soon as possible by Kebele leaders		

Short and long term water actions

	Other interventions	Actor	Before
1	Inform users of current risk and advice them about safe water handling and household water treatment (chlorine, solar disinfection)	HEW	May 1
2	Initiate the establishment of a new WASHCO in consultation with WWO	Kebele leaders	May 1
3	Explore temporarily water rationing to reduce waiting times at tap stands, pending repair of system	WASHCO	May 8
4	Establish maintenance and monitoring system seeking support from WWO, (simple reporting format)	WASHCO	May 8
5	Train new operators and review their work and reporting	WASHCO	July 1
6	Report to community on income and expenditures and explore the tariff which perhaps is high because of water loss	WASHCO	June 1
7	Review sanitary conditions close to tap stand s (long queues)	HEW	May 1

7. Water safety alternatives

An important problem in many communities is that several water sources may not be safe in terms of water quality and also water may be contaminated during transport and storage.

When this is the case we may be able to initiate a process to improve the situation, but this may take time. Hence we may need alternatives that community members may be able to use.

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'Safe' water is needed for some uses

What does 'safe' water mean for community members. Different views may exist and particularly young children and elderly people may be more affected by bacteriological contamination.

Non polluted water is needed for drinking and cooking (washing vegetables), whereas for other purposes some pollution may no be a problem. Hence we need to ensure a minimum volume of non polluted water of some 5 litres per person per day

Advice about good quality sources

If some systems in a community provide good quality water then it is important that community members are aware of this and can access these sources at least for the 'safe' water they need. If only few of these sources exist it may be necessary to establish a rationing system for these sources to avoid long waiting times.

Rationing of 'safe' water may be needed to avoid long waiting lines

Putting a water tank with multiple taps at a tap stand may reduce waiting time

Water transport and storage is a main risk; people need advice and jerrycans need cleaning!

Rainwater may be an option

Rainwater may be a main source of good quality water

Rainwater may be a good relatively safe water source provided it is properly managed including cleaning of roof and diversion of first flow

This water should primarily be used for drinking and cooking as this will make it last longer; for other uses water may be obtained from other sources

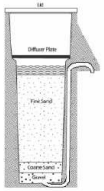
If you want to be sure about the safety for young children you may apply household water treatment

Explore experience of the community with using rainwater

Reducing turbidity

Water that is turbid (clouded) may be contaminated. Before this can be treated it is important to reduce the cloudiness as much as possible which can be done through straining or sand filtration.

Straining does not make water free from all contamination but facilitates subsequent treatment



These treatments however are usually not sufficient to make the water safe to drink hence further treatment is necessary

Sand filter used in Oromio

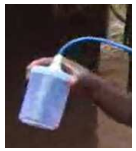
Sand filtration is a good option but requires that the water flow is not interrupted to ensure optimum removal of harmful bacteria

Source: HWT stephenson

Water boiling or filter candles

Water boiling is a good option but it requires fire wood that may be costly particularly for poorer families

Boiled water needs to be shaken or a little salt may be added to improve the taste



Household water filters may be another option

Disinfection by chlorine or the sun

Water can be disinfected by chlorine. solution; Waterguard for example is a product used in Ethiopia

Solar disinfection (SODIS) is a good option; it requires putting water (that is not clouded) for more than 6 hours on a sunny location; and on two consecutive days on cloudy days or when ambient temperatures are low maximum diameter 10 cm;

8. Financing water supply

Resources are needed for:

- **Management and maintenance** which may comprise cost of salaries, fuel, electricity, spare parts; but also funds for water testing, awareness raising, and capacity building
- **System repairs,** which may include cost of materials, labour cost possibly of private sector and supervision
- **Development of new systems or extensions,** which may include upgrading of the system

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How are these costs financed

- Users contributions (cash, kind, tariffs) –
- Government funding donating systems as well as their time
- NGOS
- Loans (provided the WASHCO is legally registered)

Differentiate between Kebele and WASHCO

- Part of the cost may be clearly at system and WASHCO level
- Other costs may be at Kebele level where priorities may have to be established
- Part of the cost may have to be included in Woreda planning

What cost are involved in a water system

- Initial construction cost mainly paid by government or NGOs with some community contribution in cash and kind
- O&M cost (salaries, fuel, electricity, small spareparts, chlorine? etc.) mainly covered by users (tariffs and fines).
- Larger repairs (sometimes because of absence routine maintenance) usually paid by Govt. and NGOs; some by users.
- Water quality testing if done then paid by NGOs or Govt.
- Extension (larger extensions paid by Govt. and NGOs; but making house connections etc. paid by users)

These costs occur at different moments

Estimating Operation and Maintenance cost

For rural water supply at least the O&M cost need to be covered by the users. These costs need to be calculated and compared with the tariff.

- List the cost involved in O&M; (salaries, energy/fuel, transport, materials, External support (regular checks, routine maintenance)
- Check if you need to add the cost of saving money for larger repairs
- Estimate water production (check water loss)
- Calculate price per m^3 and compare with tariff
- Adjust tariff as needed in collaboration with users

Taking action for improvements

The KWSP has identified a number of actions which will include different types of costs in cash and/or kind. To be able to implement these actions it is necessary to

1. Estimate the cost involved in each of the (priority) actions to achieve the necessary improvements
2. Explore how and when these cost can be met possibly from different funding sources
3. Develop a plan to obtain the necessary funding

If cost are high then it may be necessary to review and adjust the priority setting and/or timing

Estimate the cost for improvements

The cost for the envisaged actions need to be calculated taking into account that it is important to try and optimise the use of community resources (cash and kind). In general cost may include:

- Salaries,
- Cost for advice (which may be in kind if given by Govt.)
- Materials, and equipment
- Transport
- Meeting costs

Identify potential sources of funding

To meet the cost involved in the KWSP actions different sources may be available:

- Users (in kind and in cash including possible savings); contributions may be easier to obtain if clear information is provided and proper reporting is done)
- Special users like water sellers or larger entrepreneurs may be interested to provide additional resources particularly if they get some benefit healthier employees, own collection tap
- Government (via Woreda or Water Bureau)
- NGOs and donor projects

How to get support

- The first option for support are the users
- However if cost are beyond community or Kebele capacity then the main entry point for support is the Woreda. They can request:
  - Support from Water Bureau (zone, region)
  - Support from government budget
  - Support from NGOs

Approaching External funding sources

Approaching external funding sources require:

- **Developing a proposal** - (that has details with regards to each cost component, each source of income -from tariff, fine etc,-) and also that justifies the need for external funding for some of the cost components.
- **Make the proposal accessible to potential funding sources/implementers –** including making the proposal part of the big annual Woreda work plan

Create openness in financial issues

It is crucial to be open about financial issues as poor accountability is an important problem in many systems. Hence it is important to be:

- Transparent in writing about roles and tasks of different actors as well as the payments and cost involved
- Accountable – by making a clear report (including financial information that can be checked by others) and report back on this to the users

Source: Alemu et al. (2008)

References and further reading

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Annex 1. Checklists for sanitary inspections

Table A1 Risk assessment: covered dug well with handpump (WHO, 1997)

	Community:		
	Date of visit:		
	Issue	**Risk**	
		Yes	No
1	Is there a latrine within 10 m of the well and hand-pump?		
2	Is the nearest latrine on higher ground than the hand-pump?		
3	Is there any other source of pollution (e.g. animal excreta, rubbish) within 10m of the hand-pump?		
4	Is the drainage poor, causing stagnant water within 2m of the cement floor of the hand-pump?		
5	Is there a faulty drainage channel? Is it broken, permitting ponding?		
6	Is the wall or fencing around the hand-pump inadequate, allowing animals in?		
7	Is the concrete floor less than 1m wide all around the hand-pump?		
8	Is there any ponding on the concrete floor around the hand-pump?		
9	Are there any cracks in the concrete floor around the hand-pump which could permit water to enter the hand-pump?		
10	Is the hand-pump loose at the point of attachment to the base so that water could enter the casing?		
11	Is the cover of the well unsanitary?		
12	Are the walls of the well inadequately sealed at any point for 3m below ground level?		

Table A2 Risk assessment: spring (WHO, 1997)

	Community:		
	Date of visit:		
	Issue	**Risk**	
		Yes	No
1	Is the spring unprotected?		
2	Is the masonry protecting the spring faulty?		
3	Is the backfill area behind the retaining wall eroded?		
4	Does spilt water flood the collection area?		
5	Is the fence absent or faulty?		
6	Can animals have access within 10m of the spring?		
7	Is there a latrine uphill and/or within 30m of the spring?		
8	Does surface water collect uphill of the spring?		
9	Is the diversion ditch above the spring absent or non-functional?		
10	Are there any other sources of pollution uphill of the spring (e.g. solid waste, animal dung)?		

Lloyd and Helmer (1991) use these checklists to rank the risk on the basis of the number of positive responses. Hence if there are only one or two positive answers, than the risk is suggested to be low and if there are many then the risk is high. This however is misleading as some risks are more severe than others. For example a crack in the well head where polluted water infiltrates implies direct pollution of the water. If this is the only risk that is identified then the score would be 1 out of 12 which according to the approach would be low, but this contrasts with reality as the water is polluted, hence the risk is high.

So it is suggested to use the lists to identify potential risks, but then to assess each of them to establish whether the risk is low, moderate, or high
(*Reference for checklists Lloyd B and Helmer R (1991). Surveillance of drinking water quality in rural areas. Longman, London*)

Annex 2 Reporting format for each water point

System	*Type of system e.g. well with handpump etc.*
Location	*Indicate location*
Details	*Description of the system; year of construction, depth of well; discharge*
Technical Quality	*Actual state of the system including check of performance (eg number of strokes before water flows and number of strokes to fill bucket; cracks in apron etc)*
WASHCO composition	*Indicate (gender) composition of WASHCO*

Assessment service delivery	
Coverage	*Number of potential users living within 1.5 km*
Actual users	*Number of households actually using the system in wet and dry season*
Water quantity	*Average water volume households collect in dry and wet season*
Water quality	*Users appreciation of water quality; result of sanitary inspection*
Continuity	*Access during the day; problems in terms of waiting hours; differences between dry and wet season*
Cost	*What tariffs are charged; have they increased*

Map of location of system

Map of system and surrounding area to show households and if feasible the catchment area

Take pictures of the system and the surroundings and any problem you identify

Main technical problems of the system	
1	
2	
3	
4	
5	
6	
7	

Main management and financial problems related to the system	
1	
2	
3	
4	
5	
6	
7	

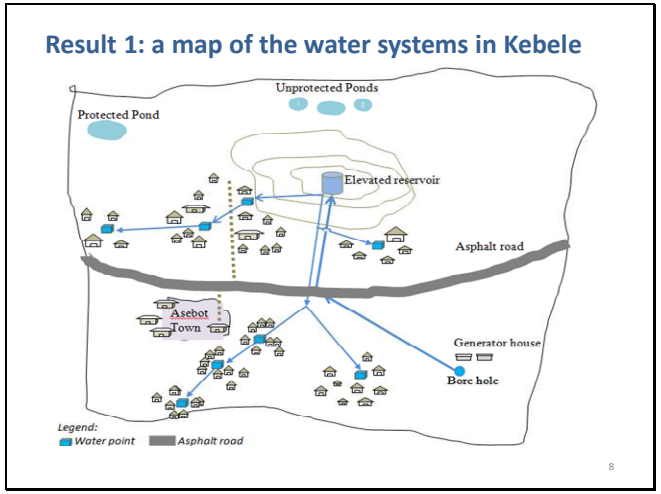
Proposed actions to improve the situation

	Action	Responsible	When
1			
2			
3			
4			
5			
6			
7			

Annex 3 Format for summary report Kebele (or initially micro watershed)

Item	Description
Name	*Name of Kebele (or micro catchment in Kebele)*
Population size	*Population living in the area that was surveyed*
Main occupation (s)	*Of population in area*
Type of water supply systems	*Types of water systems available to population (detailed report available per system)*
Water access (% with 15 litres < 1.5 km)	*Part of population living within 1.5 km; of improved water sources*
% population using improved water sources	*Part of population actually using improved water sources in dry and wet season*
Schools WASH	*Situation of water, sanitation and hand wash facilities in schools*

Map of Kebele or micro watershed with water points



Some pictures of systems

Summary assessment of service delivery; *This provides an overeview of the situation looking at the combination of all systems that were reviewed. Hence the table may show different ranges when differences exist among systems*	
Water quantity	*Average water volume households collect in dry and wet season*
Water quality	*Users appreciation of water quality; result of sanitary inspection*
Continuity	*Access during the day; problems in terms of waiting hours; differences between dry and wet season*
Cost	*What tariffs are charged; have they increased*

Main technical problems of the systems (*this can be a summary of the main problems with separate slides for each type of system or a combination of all systems in one slide if problems are similar*)	
1	
2	
3	
4	
5	
6	
7	

Main management and financial problems related to the system(s) (*this can be a summary of the main problems with separate slides for each type of system or a combination of all systems in one slide if problems are similar*)	
1	
2	
3	
4	
5	
6	
7	

Proposed actions of the WASHCOs to improve situation *(This concerns a summary of the actions related to the different systems that the WASHCOs have agreed to take forward)*

	Action	Responsible	When
1			
2			
3			
4			
5			
6			
7			

Proposed actions of the KWT to improve situation (*This concerns a summary of the actions related to the different systems that the KWT has agreed to take forward including for example monitoring of and support to the WASHCOs)*

	Action	Responsible	When
1			
2			
3			
4			
5			
6			
7			