

Guideline Point of Use Water Treatment (PoUWT) Options in WASH Emergency

**Ministry of Water, Irrigation and Electricity in Collaboration
with National WASH Emergency Cluster**

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Forward

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Acronyms

Executive summary

1. Introduction

1.1. Policy Context Analysis

1.2. Background

The provision of an acceptable standard of water supply, which is an important determinant for survival, becomes critical in the initial stages of a disaster. People affected by disasters are generally much more susceptible to illness and death from disease, which, to a large extent are related to inadequate water supplies and an inability to maintain good hygiene. The most significant of these diseases are diarrheal and infectious diseases transmitted by the faeco-oral route; other water related diseases include those carried by vectors. The most important remedy for these problems is water treatment to remove pathogens present in the water supply, either at the source or at the point of use. In emergency situations, household-level water treatment the so called Point of Use Water Treatment (PoUWT) is an option when a water source water treatment system is not possible. PoUWT involves water treatment at house hold level by the end users; the treatment employed varies with the type of contamination and methods to be managed.

One of the reasons PoUWT technology options are effective in an emergency is its potential for rapid and targeted deployment. They have shown effectiveness in reducing cholera transmission in emergencies (convoy 2001; Doocy 2006), and against AWD outbreaks (OCHA 2007). Evidence exists that the introduction of PoUWT in emergencies like in epidemics often provides an opportunity for increased adoption and long-term use by targeted populations (Ram 2007; Clasen 2006).

Based on the above evidence, the Government of Ethiopia in several years, PoUWT has been included in multi-agency assessments for humanitarian requirement document as primary options to respond to WASH emergency.

Ethiopia faces recurrent emergencies such as drought, flood and disease outbreaks which disrupt existing safe water supply systems. As part of the response to these emergencies, different PoUWT have been introduced to improve household water quality and reduce risks of water borne disease.

This is why Ministry of Water, Irrigation and Electricity (MOWIE) identified the need for a national guideline on PoUWT to ensure a consistently safe standard of water supply in emergencies is maintained. This should integrate into a comprehensive emergency preparedness program and allow for pre-positioning of appropriate PoUWT options before emergencies occur.

2. Objective

The overall objective of this guideline is to guide planning, selection, distribution, utilization, harmonization and integration the use of POUWT interventions as a response during any type of emergency that disrupts safe water supply, Sanitation, hygiene existences.

Specifically, the guideline will have the following specific objectives

- To set Criteria for selection of appropriate POUWT technology options in emergency
- To inform on the types and allowable limits of contaminants commonly found in the water for implementers and users.
- To ensure proper supply chain of POUWT technology options in an emergency response To provide directions for guidance on the correct use of POUWT at different levels
- To establish the monitoring and evaluation tools and systems for POUWT interventions
- To enhance coordination and harmonization so as to understand POUWT technology options and their application among all stakeholders.

3. Selection, planning and Distribution

3.1. Types of Point of Use Water Treatment Options (PoUWT) intervention in Emergencies

Disruption of reliable water supplies in an emergency necessitates supply from alternative sources which may be contaminated. Therefore water from these sources should be tested and appropriate treatments identified. PoUWT water treatment options frequently include reduction in turbidity, disinfection, and sterilization which often require chemicals and other Non –Food Item (NFIs) and these needs to be supplied to the point of use, accompanied by a training programme to ensure correct application. In order to select appropriate POUWT options as per this guidelines, local context, type of emergency and principles of water treatment the type of POUWT options are indicated shortly as follows

1. Turbidity Reduction

If water is cloudy, the first step in treating water is to remove as much suspended material as possible. Turbidity reduces the effectiveness of all disinfection treatments and is a visual disincentive for human consumption.

2. Filtration

Filters remove dirt from water by physically blocking them while letting water flow through. Water passes through a material such as sand or ceramic and harmful material is caught in the filter. Filters are not commonly used in emergencies.

3. Straining

Pouring muddy or dirty looking water through a piece of fine, clean cotton cloth will often remove a certain amount of the suspended solids and insect larvae contained in the water. A cotton cloth works best and you should not be able to see through the cloth. On the other hand, the cloth should not be so thick that it takes a very long time to filter the water. Washing the cloth between uses will make straining more effective.

4. Sedimentation

If water is muddy, giving it time to settle or adding chemicals can cause the dirt to fall to the bottom of the container and make the water clear. This process can be improved by straining the water with a cloth. A widely-used method is the three-pot method.

Note: Water that has been made *clear* by sedimentation is not *clean/safe*. It still needs disinfection to remove organisms that cause disease.

5. Chemical sedimentation

This is the use of chemicals to achieve two purposes: speed up the removal of dirt from water and disinfect the water.

These products contain two chemicals. One chemical acts like a glue and makes small particles stick together (flocculation). This creates bigger particles, called floc, that fall to the bottom of the container faster. Then another chemical disinfects the clear water.

Chemical sedimentation has positive and negative aspects.

These products can make muddy water safe to drink.

There is a residual effect of disinfection, which gives protection against contamination after treatment.

These products are more complicated to use and require more training and follow up.

These products are significantly more expensive per litre of water treated than chemical disinfection products and should only be used when water is muddy or no other product is available. To properly use this method, more equipment is required including 2 containers, cloth, and a stirrer.

6. Disinfection

Water disinfection means the removal, deactivation or killing of pathogenic microorganisms.

Microorganisms are destroyed or deactivated, resulting in termination of growth and reproduction

(Copyright © 1998-2013 Lenntech B.V <http://www.lenntech.com/processes/disinfection/what-is-water-disinfection.htm> date accessed 6 Nov 2013). Disinfection methods can be grouped in to three major categories:

- Heat (Boiling)
- Ultraviolet (Solar)
- Chemicals

7. Boiling

Boiling is a traditional method of water heat treatment. If it is done properly it can provide safe water to a population that has no alternatives. Boiling has positive and negative aspects.

- Boiling will kill all germs that cause disease
- Boiling water is something people can do themselves
- It takes about one kilogram of firewood to boil one litre of water for one minute. Boiling should not be promoted in areas where wood is scarce and no other heating options are available. Communities also need additional cost to incur if electric power is used for boiling.
- Boiling will not make water less cloudy.
- Boiling has no residual effect, so improper storage can lead to re-contamination. Boiled water should be stored safely and used within a few days.
- Boiling is only effective if the temperature is high enough. Water that is simply steaming has not been boiled. The WHO recommendation is to bring water to a rolling boil which ensures that all bacteria are killed. At 65°C, almost all pathogens die within 12 seconds.

8. Solar disinfection

Exposing water to sunlight will destroy most germs that cause disease. This is even more effective at higher temperatures (although the temperature of the water does not need to raise much above 50°C). One easy method of treating the water is to expose plastic or glass bottles of water to the sun. In sunny weather, a safe exposure period is about six hours, centered around midday. The exposure time should be increased to two consecutive days if the weather is mostly cloudy. During days of continuous rain, it is not advisable to use the SODIS method. Only clear water can be used for SODIS.

This method, also known as the SODIS system, uses clear plastic or glass bottles to increase the temperature of the water by placing it direct sunlight. For greater effectiveness, place the bottle on a corrugated-iron roof. The water can also be held in a clean and clear plastic bag if a bottle is not available. Solar disinfection has positive and negative aspects.

- Solar disinfection will kill most germs that cause disease if exposed to the sun long enough.
 - Solar disinfection is something people can do themselves with widely available materials (clear bottles or clear plastic bags) as a simple method of disinfection.
 - There is minimal change in the taste of the treated water, leading to greater acceptability.
 - Solar disinfection has no residual effect, so improper storage can lead to re-contamination.
- Water treated by this method should be stored safely and used within a few days.
- Solar disinfection takes more time than other methods.
 - Water of higher turbidity needs to be pretreated with flocculation and/or filtration.

9. Chemical disinfectant

There are many chemicals capable of disinfecting water. These chemicals often vary in their effectiveness and safety. Chlorine is the most commonly used method of household water disinfection in emergencies.

Most raw water sources have a pH value within the range 6.5 - 8. As the pH level rises, the disinfecting properties of chlorine start to become weaker and at pH 9 there is very little disinfecting power. The WHO guideline recommends drinking water to be in the range pH 6.5 - 8.5 and so pH can have a significant influence on the performance of chlorine in water we are likely to be working with for drinking water supplies.

The temperature of the water to be disinfected can have a significant effect on chlorine efficiency. The time needed for disinfection becomes longer as the temperature of the water gets lower. There is a noticeable difference in the kill rate of bacteria between 2 and 20° C.

Care should always be taken when working with chemicals:

- Do not allow the chemicals to come into contact with the eyes.
- Chemicals should be stored out of reach from children in a dry place out of direct sunlight.
- Instructions might not be in the language the people speak or they may not be able to read.
Thus it is very important to make sure all people who receive chemicals are trained how to use them.
- Because of quality control concerns and the wide range of concentrations, common household chemicals such as laundry bleach should not be utilized as a chemical disinfectant unless no other options are available

Chemical disinfection has positive and negative aspects which include:

- These products are easy and safe to use.
- Chlorine products are low-cost and highly-scalable.
- There is a residual effect of disinfection, which gives some protection against re- contamination after treatment. However, the residual level depreciates over time and with increased temperatures.
- These products are typically brought from outside the community, not manufactured with local resources. But there is exceptional case for example make and bottle their own hypochlorite solution in places by preparing chlorine stock solutions using different concentration of chlorine chemical, it may be liquid or solid.
- Chemical disinfection will not get rid of all germs that cause disease. Water should be strained prior to use of chemical disinfection in order to ensure all risks are eliminated.
- Turbidity and pH of the source water has to be known prior treatment due to the fact that it will affect the strength of chlorine (i.e. the recommended turbidity is < 5 NTU and pH 6.5-8.5).
- Communities may object to the potential taste and odor of chlorine disinfection.
- Quality control must be done of the product.

3.2. Selection of Point of Use Water Treatment (PoUWT) Options

1. Water Testing

All proposed water supply sources must be tested in accordance with the compulsory Ethiopian Standard CES 58, drinking Water Specifications. Surface water intended for water supply source should be sampled at least 6 times per year per site to detect the maximum and minimum concentration of

interest. Then after two full physio-chemical analyses per year is recommended. In other hand, if the emergency water is supplied using water truck option, the supplier should conduct chlorine residual test before distribution taken place in the distribution site. This may be done using pool test or standard color comparator (free chlorine or combine chlorine)

Testing follows Ethiopian Standards and World Health Organization (WHO) recommendations. See Annex XXX for testing details and allowable limits of contaminants.

The most appropriate PoUWT option depends on existing water properties. Effective PoUWT will only be successful with the provision of the adequate supplies of the right materials backed up with a training programme.

Following identification of the contaminants to be removed, the following should be considered:

1. **Community acceptance:** the importance of community adoption of the treatment methods must be emphasized in order to save lives. Some treatment methods may not be accepted by a community due to rumors or cultural reasons. It is critical to consider cultural sensitivities when planning water treatment interventions.
2. **Affordability:** the cost of the remedial treatments must be sustainable by the programme by the implementing partners and for the community, taking into account the exit strategy.
3. **Environmental factor:** the environmental impact of a selected treatment has to be taken into consideration prior to selecting a PoUWT option. Environmental factors include local climate and geographical conditions, as well as safe disposal of expired products and packaging materials.
4. **Storage and Transportation:** Proper storage conditions and transportation methods must be matched to the site conditions to prevent loss or damage of the product. In areas with anticipated risk, pre-positioning of PoUWT products should be considered to facilitate a quick response. The use of locally available products should be prioritized if continued use in the post-disaster phase is desired. Effective use of PoUWT requires regular follow-up, support and monitoring and this should be a prerequisite to adopting it. And also availability of storage materials and type of storage should be included in the selection criteria for appropriate handling, safe storage and effective utilization
5. **Accreditation:** PoUWT products should have accreditation by a suitably qualified body before release to the public. The Federal Food and Drug Administration and Control Authority

is responsible for accreditation of all PoUWT products, whether produced locally or imported. The onus is on the implementing partners supplying these products to ensure accreditation.

- 6. Product Compliance:** All PoUWT products should comply with WHO and Government of Ethiopia standards and clearly state the compliance on the product (see annex >>>).
- 7. Labeling:** PoUWT product labeling should clearly display product information indicating the name and concentration of all ingredients, storage requirements, expiry date, method of use and clear warnings of any hazards associated with the product. Where possible, diagrammatic instructions should also be shown clearly and/or translations into the local language should accompany the product.
- 8. Instruction Manuals:** Where applicable, PoUWT products should be accompanied by instructions in local languages in sufficient detail to enable effective employment.
- 9. Training:** The procurement contracts for PoUWT products should contain a requirement for the supplier to provide training at different levels such as federal, regional, zonal and woredal level. Implementing partners must ensure effective training is carried out at household level through community structure
- 10. Product data Sheets:** Product data sheets should be available in sufficient quantities to satisfy demand from partners, community groups, and individual households.
- 11. Community participation:** community awareness orientation and training starting from the planning should be organized by the implementing partner to ensure the correct use of the PoUWT product and the proper handling and storage of treated water to prevent contamination of treated water.

3.3. Planning and distribution

- 1. Supply chain:** The MOWIE and the respective regional bureaus and woreda water offices are responsible to request, receive, store, distribute, and follow up PoUWT. The supply chain of PoUWT products should go through the structure of the water bureau/offices. When required, the request should go to the MOWIE and its respective line offices. The MOWIE and the respective bureaus/offices will pass on requests to donors, NGOs or private suppliers.
- 2. Transportation:** transportation of the PoUWT NFIs to the communities is the responsibility of implementing agencies in coordination with the MOWIE and its line bureaus/offices. The MOWIE will communicate with UN agencies and other suppliers donating PoUWT to facilitate transportation

3. Storage and handling

The transported PoUWT should be stored in accordance with the manufacturer's recommendations which will be shown on the packaging. The shelf life of the product should not be less than six months from the time of community distribution. Efforts to make water clean can be negated if the water is improperly stored or handled after treatment; Even after the quality of the source has been improved, a campaign to improve the storage and handling of water will benefit the health of a population. Encourage people to ALWAYS wash their hands prior to handling drinking water. Distributions of household water treatment chemicals present a perfect opportunity to distribute soap and give hygiene messages. In emergencies, people will use containers they already own or containers that they are provided with during the intervention. Keep containers clean, covered, and out of reach of children. Efforts should be made to use safe storage containers which consist of containers with a small opening that discourages users from placing potentially contaminated hands or objects into the container and allow easy and safe access to the water. The container should also be a size appropriate for the household water treatment method. Evidence suggests that safe storage containers, even in the absence of household water treatment, are effective at preventing contamination of potable water during transport and storage. Narrow necked containers should be cleaned regularly with a soap solution, chemical disinfectant (if available), or pebbles. Wide necked containers should be kept covered and hands or objects should not come into contact with the water. Decanting can be done by pouring from the container or through a spigot or small opening at the bottom of the container. The container should also be regularly cleaned.

4. Timeliness

The PoUWT should reach the target population at least within one week time from the assessment or verification of the need of PoUWT for response to the emergency.

5. Distribution at community level

The distribution of PoUWT should be in coordination with all relevant stakeholders. The distribution or implementing agencies are responsible to organize the distribution team at the community level.

Where the government structure exists, the distribution should be in coordination with local government agencies, such as health extension workers, teachers, development agents and others. In the absence of government representatives, the implementing agencies should establish temporary teams to support the distribution.

The newly established team should compose community representatives both male and female, elders, religious leaders and others depending on the existing situations and social structures.

6. Selection of the distribution sites

The distribution sites will be identified as locations accessible to all the target population. The sites should not expose the beneficiaries, especially women, to any risk. Before identifying the distribution sites, the communities should be consulted. They should be as near as possible to their dwellings/settlements. The distribution should be performed during the day light hours. While selecting the distribution sites, shade and latrine proximity should be considered. Distribution team should consider distribution direct households of those unable to attend the distribution due to illness or infirmity.

7. Disposal

Expired products should only be disposed of in accordance with the manufacturer's recommendations and always with environmental implications in mind. Partners who have custody of the expired products are responsible for their safe disposal in coordination with MoH and its line bureau/offices. The beneficiaries should return expired products to the health extension workers.

8. POUWT Promotion and communication framework in emergencies

The overall aim of promotion and communication of PoUWT in emergencies is to make sure that responsible bodies and communities have clear information on who, what, where and when use of PoUWT in emergencies.

3.4. Coordination and integration

In order to stop duplication, waste of resources, delay in response, and poor flow of information, a strong coordination mechanism from national down to woreda level is essential. As such, this guideline underlines the need to strengthen existing emergency response coordination structures. Coordination of POUWT interventions should take place at all levels during the planning, implementation and post implementation stages.

The WASH Cluster makes sure enough stock is available in the country using various forecast information. Private sector also supported the government/Cluster on bottlenecks related to POUWT chemicals importation.

At the national level, the WASH ETF which meets at the MoWIE Office will be the body responsible for the overall coordination of WASH emergency response interventions and POUWT. This body, in particular, will:

- Review emergency proposals on adherence to minimum requirements on POUWT interventions

- Share updates on the emergency situation and POUWT intervention gaps
- Coordinate and lobby with the various partners and other emergency response coordination structures (DRMFSS) for a timely POUWT response
- Lobby for strengthened regional ETFs which will, as part of its duty, coordinate POUWT interventions. At the regional level, the ETFs, which are chaired by regional bureau of water resources and co-chaired by UNICEF, coordinate with member organizations for WASH emergency interventions in their respective regions.
- The specific roles assigned to the regional ETFs on PoUWT are to: Maintains up-to-date inventory of the POUWT contingency stock kept by various stakeholders on a database:
- Coordinate the various partners to mobilize for a timely POUWT response
- Validate information on the emergency situation from the woreda level, and determine if a PoUWT intervention is required
- As required, conduct joint assessment, needs identification and gap analysis for PoUWT interventions
- Ensure joint monitoring and evaluation of POUWT intervention
- Lobby for strengthened zone and woreda ETFs which will, as part of their duties, coordinate POUWT interventions.

The ETFs at zone and woreda levels are activated at times of emergency alert, and it is highly recommended that they involve community structures (traditional and religious leaders). There are also ad-hoc emergency task forces at zone and woreda levels which are established upon breakout of WASH emergency situations.

The specific roles assigned to the zone and woreda ETFs on POUWT are to:

- Conduct a joint assessment, needs identification and gap analysis
- Coordinate the flow of information on the detection of emergency situation and interventions by partners
- Maintain and share an up-to-date inventory of the POUWT contingency stock kept by various stakeholders on a database.
- Facilitate joint monitoring, evaluation and learning of POUWT interventions including a validation process on safety and conditions of POUWT items before distribution to communities
- Ensuring adherence to guidelines by all implementing partners
- Lead the post PoUWT intervention assessment and evaluation. (M&E)

(The responsible/chair person of the task force will be responsible)

Responsibility Matrix for the various stakeholders involved in the POUWT interventions

Private Sector – either manufacturers or importers, they distribute POUWT products to communities, NGOs, UN and government bodies. They also train trainers on use of items, distribute brochures, leaflets describing use of the products. They get accreditation from relevant government authority on safety and efficacy of their product. They have to

Media – work with respective ETFs to disseminate update and key messages on emergency situations

Traditional and Religious Leaders – facilitate the effective implementation through educating, and guiding (as role models) on practicing safe PoUWT.

Zone/Woreda Administration – depending on the situation may head the ETFs, provide political and administrative assistance to implementing bodies

Kebele Administration – co-implement the PoUWT intervention through ensuring proper delivery and distribution of items to the needy ones.

HEW – will work with HDAs to ensure proper distribution of PoUWT items, correct and consistent use of POUWT, report to respective Woreda health office on progress and challenges of emergency POUWT interventions

3.5. Implementing and Alignment

4. Monitoring and Evaluation

Monitoring and evaluation of the programme is essential. In the first instance, it serves to reinforce the product usage training initially provided. It is also essential in providing information to evaluate the effectiveness of the programme in meeting project objectives. In an effort to standardize M&E systems, a recommended set of common indicators to be used, is reproduced here.

The three phases of the programme to be monitored are the programme planning, implementation and post-implementation phases. During planning phase, the monitoring and evaluation focuses on the assessment of the planned POUWT implementation towards the achievement of the planned project goal. This phase assesses the effectiveness of different approach or the contribution of various procedures towards the project purpose.

The responsible bodies for planning phase monitoring should be the implementing partner in collaboration with the relevant government stakeholders. The implementation phase focuses on the monitoring of realistic quality or process of intervention going on and these include: monitoring of POUWT storage and distribution, method of demonstration and promotion, and utilization by communities.

The IP should play the lead role for monitoring process in implementation phase. Woreda line offices and woreda ETF shall also play important role in ensuring the requirements of this guideline. Post implementation phase focuses on the events after the end of the programme and these includes the analysis of cultural or attitudinal issues (behavioral change, knowledge) towards the use of POUWT, economical issues (capacity to purchase POUWT), availability of POUWT and conditions for exit. The post implementation monitoring should be conducted by either of external bodies or joint assessment team comprising Woreda ETF members, Woreda line office and NGO staff.

Key indicators to assess the outputs and outcomes of POUWT:

- Communities will have received POUWT items in a week of commitment by implementing partners
- Minimum amount of POUWT for distribution is an amount that can treat 20liters/HH/day
- POUWT should at least have three months of shelf life at the time of distribution
- Commercial POUWT items shall have certification by relevant government authority before use
- Communities will receive proper demonstration on how to handle and use the POUWT items before distribution by IPs
- Expired POUWT items at stock shall be properly disposed of in consultation with health offices
- Quality of treated water (mostly residual chlorine, in some cases microbiological) (For details see annexed table)

5. Exit strategies

The program exit will be ensured once the implementing agency has confirmed the establishment or strengthening of the private vendors or groups of vendors at district level. In every emergency intervention, a private vendor or vendors' association will be organized and linkage with the potential POUWT suppliers will be created. The private vendor/association will work as an agent for the supplier and provide the desired services with minimum profit. The POUWT implementing agencies will build the capacity of the private vendors to ensure efficient service delivery. Whereas; the Woreda health office will regulate and ensure services rendered by the vendors are meeting the minimum quality standards. Since demand creation is inevitable to ensure social marketing; every implementers has to create demands while implementing the emergency POUWT. A diminishing of subsidy voucher system will be established and absolute linkage with the private sector has to be ensured to run the supply chain system. Hence; the following key issues has to be enshrined before an implementer quit from the area:

In areas where supply chain system not exist; the implementer has to strive for the establishment of vibrant private vendors. The establishment of vendors has to be in consultation with local partners; strengthening the existing POUWT supply chain system through targeted capacity development initiatives (logistical and human development aspects) to both regulatory and service providing bodies. Create demands for POUWT goods and equipments with fair prices; Effective information flow among partners Set monitoring and regulatory system in consultation with health office;

Advocate subsidized voucher system; Rehabilitation, reconstructions

Reference

Annexes

5.1. Responsibilities of stakeholders

Stakeholders	Roles and Responsibilities on POUWT Emergency Response Interventions			Remarks
	Planning Phase	Implementation Phase	Post-implementation Phase	
MoWIE(at national, regional, zone and woreda levels)		head the ETF at their respective scope of administration,		
MoH(at national, regional, zone and woreda levels)		Head ETF in the case of AWD outbreak; ensure that POUWT interventions are being implemented as per the organizational structure including HEWs, HDAs, ...		
DRMFSS (at federal, regional, zone and woreda levels)	Maintain contingency stock for POUWT emergency response			
MoWIE chair ETFs at national, regional (zone and woreda) levels				
NGOs – members to ETFs, planning, implementing, monitoring and evaluating emergency response through POUWT, train HEWs and HDAs on use of POUWT items				

(to be Commented by all participants)

Data on	Freq.	responsibility	Data source	Methods	Level	
Woreda/IP level						
Timeliness of the response When was the POUWT items delivered to the kebele by the IP/government body When was the POUWT items distributed to HHs	Once /upon delivery Once/upon distribution	IP or government body IP, kebele administration, woreda sector office	Handing over document (kebele level) Voucher (woreda level) Registration/distribution list community	Document review Survey (FGD, questionnaire...)	Woreda	
Condition and handling of PoUWT before distribution Expiry date (if applicable) Do the items have got accreditation from relevant government authority (FMACA)? Are the items stored in the required temperature, moisture, settings? How were the items transported?	Once/ Before transportation to kebeles	Woreda health office, IP	Manufacturers' Information (on expiry date, required temp. and moisture for storage and authorization by relevant GoE authority) the products Validation document on the condition of storage, expiry status, accreditation	Document review Validation process	woreda	
How much quantity per household was delivered to the kebele? minimum amount to be supplied per household is - for one month Coordination part: role of ETF to set minimum amounts required.. For how many households were the items distributed? Is the amount planned for	Once/before distribution	Woreda emergency task force, IP	Joint-assessment report (gap analysis) Minutes of ETF meetings	Document review	Woreda,	

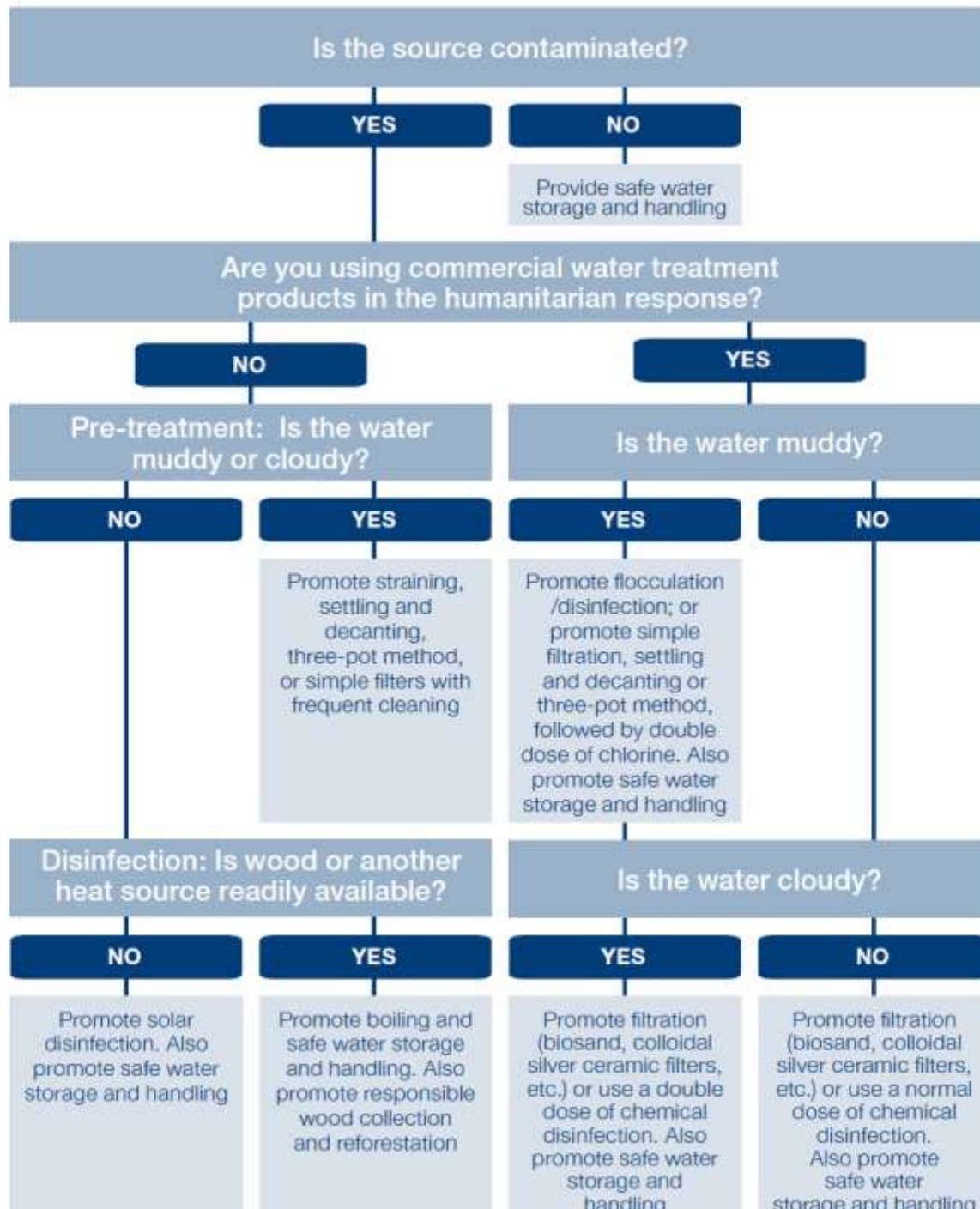
distribution adequate for use by affected families for at least one month?						
Demonstration, promotion, ... When was this done? How many did participate? Has any training / demonstration taken place at delivery site on use of POUWT intervention? When did it take place? Who was involved? How many? What type of IEC materials were used?						
HH level						
Correct, consistent use and storage Do the communities apply POUWT? How often do the communities use the PoUWT Are the communities applying the standard procedures of treatment? Are the POUWT items properly stored in the HHs as per the standards?						
Monitoring Knowledge and behavioral practices of end users. Do the communities have adequate awareness/knowledge of how to use the PoUWT? Do they feel it is important to						

use the POUWTs?						
Water quality Chemical (residual chlorine...) Microbiological components (total coliform, faecal coliform) (is it practical) Turbidity (It's also important to include Aesthetic parameters such as color, odor and taste since they can cause the water schemes get rejected)		IP/ Woreda line office	Water quality monitoring report	Document review		Pool tester, Delagua/Wagt ech field level water testin equipment to be used Cost wise should be seen

See RedR WASH in emergencies

Tables for testing why, how and what are the allowable limits,..

(This figure should be cited in the text, we cant put figures or tables without citing them in the text)



Way Forward:

All Participants to thoroughly read the document and provide comments: deadline 13/11/2013, The TWG meets on 15/11/2015- to harmonize comments, share responsibility for executive summary, Editorial, Layout and artistic design- to use existing UNICEF 's mechanism if not possible recruit consultant, Validation workshop: before validation workshop MoWE to send the final draft to MoH and FMHACA for their comment and buy in.

To be endorsed by MoWE

A. Water Testing (laboratory Procedure)

Water sampling should be carried out using sterile container of glass or polyethylene. Samples should be transported in an insulated container and kept at a temperature of 2 to 5°C. The time between sampling and analysis should not exceed 6 hours, and 24 hours is considered the absolute maximum. If ice is not available, the transport time must not exceed 2 hours.

B. Allowable limits of contaminants in the drinking water.