

TRAINING OF THE KIGOMA URBAN WATER SUPPLY AUTHORITY ON CLIMATE RESILIENT WATER SAFETY PLANS

19TH – 23RD SEPTEMBER 2016

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**World Health
Organization**

1.0. Background

The Ministry of Water and Irrigation (MoWI) in collaboration with Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC); Vice President's Office – Division of Environment (VPO – DoE) with support from the World Health Organization conducted a 5 days training session on Climate Resilient Water Safety Plans (CR-WSP) for Kigoma Urban Water Supply Authority (KUWASA). The main objective of the session was to impart skills to peoples working in Kigoma Urban Utility and other stakeholders on how to develop and implement CR-WSP. The expected output of the training session was a draft Climate Resilient Water Safety Plans (CR-WSP) for KUWASA and the follow up implementation action plan.

Climate Resilient Water Safety Plans (CR-WSP) will enable the operators and managers of the (KUWASA) to know the system thoroughly, identify where and how problems could arise, put multiple barriers and management systems in place to stop the problems before they happen and making all parts of the system work properly so as to ensure safety of water intended for human consumption and other domestic uses in adequate quantity and quality. Furthermore, it will play as a vital role in providing tools for comprehensive risk assessment and risk management approach that will encompass all steps in the water supply system from catchment to point of consumption.

2.0. Participants of the training

Trainees included people working for Kigoma urban utility, Kigoma Regional Secretariat and Ujiji Municipality, both from water and health Departments. The training session was facilitated by National WSP trainers from MoWI, MoHCDGEC, VPO-Environment, WHO (Tanzania and Ethiopia), Muhimbili University of Health and Allied Sciences, and Musoma District Council (list of names attached)

3.0. Training Methodology

3.1. PowerPoint Presentation

Facilitators developed slides that were used during the training. Training contents were extracted from developed CR-WSP guidelines for Tanzania. Others include WHO training materials used to train national facilitators in Ethiopia and some other WHO guidelines.

3.2. Field visits

Participants visited the water supply system, from source/intake, treatment, and reservoir and distribution network including household taps. This was aimed at establishing the description of

the whole water supply system. The field visit was conducted after participants were oriented on Step1, 2, 3 and 4 (system description, identification of hazards and control measures/validation) of the Climate Resilient Water Safety Plan Steps.

3.3. Plenary and group discussions

After every session, there was a facilitated plenary discussion on emerging issues was held. Similarly, participants also worked in groups in number of cases as well as during the development of the draft Climate Resilient Water Safety Plans



Mr. Osman Highlighting the Ethiopian experience on CR-WSP, Photo Barthasar, WCO-Tanzania



Participants working in groups for risk assessment & improvement plan development, Photo Barthasar, WCO-Tanzania

4.0. Matters Arising from the training

4.1. Day One – 19th September 2016

4.1.1. Official Opening session

The first day was mostly on introductory sessions which covered official opening followed by short description of the DFID Funded project (Building Climate Change Adaptation in Health through resilient Water, Sanitation and Hygiene – WASH). Before embarking on Water Safety Plan sessions, the KUWASA shared experience of operation of water supply system (challenges and successes). Two issues were most interesting to note;

- ∞ One was the fact that the drop of the depth of the Lake Tanganyika which is the source of water supply was reported in previous years. The impact was shifting the position of water intake to deeper water for pumps to work. This is thought to be due to impact of climate change on water resources, including rivers which flow towards Lake Tanganyika.

- ∞ The second issue was the fact that the KUWASA has been trained twice on WSP by International Water Association (IWA) organized by Ministry of Water and Irrigation and already has developed WSP, though not yet operational. However, the training did not have a component of Climate Change and Variability.

4.1.2. Introduction to CR - WSP

This official opening was then followed by introduction to CR - WSP steps, focusing mainly on step number one, the development of CR - WSP team. However, participants were reminded that the discussion on CR - WSP team composition will be discussed in detail after completion of all steps.

Issues that emerged during day one of the training

- Participants wanted to understand the relationship between climate variability and water safety. The relationship was briefly discussed pending detail presentation during the next days as per training schedule.
- There was some concern on the project delay to initiate the CR - WSP process in Kigoma if the project took off from March 2013. This was explained that other issues within the project including preparation of CR-WSP guidelines had to be completed before embarking on training on development of CR – WSP
- There was a question on whether the CR-WSP will cover the private water suppliers? This was explained that the WSP is so comprehensive that it will attract teams of experts from various sectors including health, who are responsible in monitoring water supplied to customers even from other sources such as wells
- There was an observation that natural disasters such as earthquakes that may have impact on water supply system was not addressed CR-WSP. This was explained that the scope of CR-WSP covers all hazards that may arise due to anthropogenic activities and climate related events such as drought and floods.
- To what extent KUWASA has gone in implementing WSP? It was explained that the KUWASA has gone as far as developing WSP action plan, though not yet started to be implemented. However, the developed plans did not address issues of climate variability and change.

4.2. Day Two – 20th September 2016

Day two of training focused on three issues: the theoretical description of the water supply system (source/catchment, treatment, reservoir, distribution as well as consumers i.e. households). Other sessions included hazard identification and analysis as well as risk assessment and scoring. These sessions were the basic foundation of field visit aimed at describing the water supply system layout and hazard identification. After the presentations and discussion on Step 2 to 4, participants went for a field visit at KUWASA.

Participants walked through the whole water supply system, Kigoma Urban Water Supply Authority to establish the layout and identification of potential hazards. It was learnt that KUWASA is constructing new water supply system with assistant from development partners. Both water supply systems were visited though description was done to the current one. Moreover, participants visited the distribution network, including households to identify potential hazards, determine and validate existing control measures from source water to point of use at household level.

Images of some events during the field visits to KUWASA and the intake at Lake Tanganyika



There was a concern on the safety of water at the household level as water may be safe (with required chlorine residuals) up to a tap (point of consumption) but due to improper storage and poor hygienic practices at the household level water may become contaminated. It was

emphasized that the CR-WSP team should liaise with other authorities specifically the health department to provide education on water management at the household level.

4.3. Day Three – 21st September 2016

The morning session during the third day was devoted to preparation of field reports including sketch of the layout of the water supply system. Participants, working in to two groups, described the whole water system as observed during the field visit. This was put on the flip chart and was presented in the plenary. Some of the issues emerged during presentation and discussion on the field trip included:

- ∞ Each group was required to include control measures for each identified hazard from the sketched layout and hazards identified.
- ∞ Management of catchment river that feeds Lake Victoria which are not part of Tanzania territory: However, this was explained that there are international environmental protection agreements that deals with shared natural resources
- ∞ It was agreed that the field report and the layout should be used to improve the WSP planning process

The development of the CR-WSP for Kigoma urban utility began during the third day of training where facilitators guided participants on how to go about it. Much emphasis was put on the consideration of climate change issues in all aspects of water supply system.

4.4. Day Four – 22nd September 2016

During the fourth day, facilitators continued with the presentations to cover other CR - WSP steps that were not covered. Participants were also oriented on the relationship between climate change and water safety plans. This relationship is the basis of planning CR-WSP so that for example if flood due to excess rain occurs; the system need to keep on functioning and minimized the interruption of water supply quantity and quality issue of the water supply. In conclusion, the CR-WSP improvement plan is based on the risk assessment matrix completed after the field visit.

The technical expert from Ethiopia WCO, in addition to participating as a facilitator of the several sessions, he also shared an experience of CR-WSP development process and implementation status in Ethiopia. He described all successes and challenges on the implementation of CR-WSP. Some noted success include development of CR-WSP implementation (guidelines for urban utility managed piped and drinking water supplies and for

the Rural community managed water supplies), and CR-water safety strategic framework. Both documents were developed in 2015 and since then they have been operational. Other successes include capacity building on climate resilient water safety plans and support of implementation of improved plans including the construction of climate resilient infrastructure such as storm drains/retention walls that prevent source water from damage and/ or total loss of the scheme. The lesson learnt from his presentation is that Ethiopia is more advanced in implementing CR-WSP than in Tanzania and that there a lot to learn from there. Moreover, he briefly presented the need to and how to integrate the issue of climate resilient in each steps of Water Safety Plan implementation. Participants continued to develop the CR-WSP improvement action plan and plenary discussion on the same for the rest of the day.

4.5. Day Five – 23rd September 2016

Fifth day, the last day of the training was devoted mostly on improving the draft CR-WSP for KUWASA. The basis for improvement was comments and inputs from individuals during preceding plenary sessions. Participants continued to refine the plans till it was agreed that the session be adjourned and KUWASA be given timeline to accomplish development of the plans as shown in the table below.

4.5.1. Way forward

The following Table summarizes the agreed action points after the training session

s/no	Activity	Timeline
1	Submission of the draft plan of action of CR-WSP for KUWASA to MoWI	3 rd October 2016
2	MoWI share the draft plan of action of CR-WSP for KUWASA to MOHCDGEC , VPO-Environment and WHO	6 th October 2016
3	MoWI to share improved plan of action of CR-WSP to KUWASA	10 th October 2016
4	KUWASA to submit final improved plan of action of CR-WSP to MoWI and Concept Note (CN) for implementation of the developed CR-WSP	15 th October 2016
5	MoWI to submit the CN to MoHCDGEC and WHO	15 th October 2016
6	Implementation of CR-WSP by KUWASA	15 th October 2016 onwards

4.5.2. Official closure of the training session

- ∞ **Vote of thanks from KUWASA:** A representative of KUWASA, on behalf of others, acknowledged the training organizers Ministry of Water and Irrigation and the Ministry of Health, Community Development, Gender, Elderly and Children for the capacity building provided to them. He assured the Government that KUWASA will work and

accomplish the tasks agreed in the way forward. Furthermore, KUWASA will work tirelessly to provide clean and safe drinking water through use of developed climate resilient water safety implementation plan

- ∞ **A word from WHO:** Both the WHO representatives from Tanzania and Ethiopia offices expressed their deep appreciation for the commitment of the WSP Tanzania team, the facilitators and participants. Particularly, participants were praised for their active participation during the whole week of the training and were congratulated for being able to come up with the draft CR-WSP and that the WHO is looking forward to seeing smooth implementation of the water safety plans in order to protect human health.

In his remarks, the WHO representative from Ethiopia suggested to the KUWASA to establish a baseline status of the water supply system including water quality tasting and analysis before commencement of the implementation of CR-WSP. Baseline information is important to monitor the progress/ maturity and impact of the CR-WSP benefits. He provided the tools for the exercise. Other issues he recommended include to make sure that climate change issues are always taken on board; establish partnership with various stakeholders; conduct cascade training within the Region; and include CR-WSP in the wide WASH program so that CR-WSP becomes part of the Council annual plans.

- ∞ **A word from Regional Administrative Secretary (Water –sector):** The RAS- water sector was impressed by the training provide to KUWASA by the Government in collaboration with WHO and other partners. He promised to provide necessary assistance needed for smooth implementation of water safety plans in Kigoma Urban. He proposed to establish a discussion forum on water safety and other related matters among professionals. Finally, he wished all traveling persons a safe journey back home.
- ∞ **Official Closure:** The training session was officially closed by Assistant Director, Water Quality (MoWI) Mr. P C Chandy. In his closing remarks Mr. Chandy thanked the participants for being active and participatory throughout the five days training, and facilitators for making the training achieve its intended output. He insisted that the collaboration shown among stakeholders in this training should continue. To KUWASA, Mr. Chandy commended their initiatives and efforts of developing WSP which helped the training not to begin from the scratch. He insisted that the knowledge and skills achieved among KUWASA should be utilized fully to cascade the training and not to rely on external facilitators. Finally, he promised that KUWASA and COWSO in Mbande will be the model for scaling up the CR-WSP in the country. He wished participants safe journey back home.

Appendix I: List of Participants

List of organizers and facilitators

S/No	Name	Title	Organization	E mail address	Phone number
1	Philipo C Chandy	Assistant Director –Water Quality	MoWI	philipo.chandy@maji.go.tz	0713248423
2	Theophil Likangaga	Principal Health Officer	MoHCDGEC		
3	Dr. Masinde K. Bwire	Principal Environmental Officer	VPO - DOE	bwirejoseph@gmail.com	0752534632
4	Alex N. George	Chemist	MoWI		
5	Barthasar Rwelengera	NPO/HECC	WHO - Tanzania	rwelengerabr@gmail.com	0769439191
6	Osman Yiha	NPO/PHE	WHO - Ethiopia	osmanyiha@gmail.com	+251911876059
7	Hussein Mohamed	Lecturer	MUHAS	hmohameds1@gmail.com	+255714217172
8	Mwizarubi Nyaindi	Environmental Health Officer	Musoma District Council	nyaindi@yahoo.co.uk	+255753 483147
9	Mwanaidi Myimade	Principal Engineer	MoWI		
10	Claudiana Lyimo	Engineer	MoWI	silvesterclaudia2@gmail.com	0752870253
11	Bumija Mboya	Principal Environmental Health Officer	MoHCDGEC		
12	Geofrey Joseph	Epidemiologist	MoHCDGEC	Gmchau80@gmail.com	0713181017

List of participants from Kigoma Regional Secretariats (RS), Municipal Council (MC) and KUWASA

S/No	Name	Title	Organization	E mail address	Phone number
1	Shija M. Ganai	Regional Health Officer	Kigoma RS	ganaikk@gmail.com	0753520196;
2	Josephat Rwegasira	WNE	KUWASA	uwassakigoma@yahoo.com	0769219544
3	Edward L. Philli	Environmental Health Officer	Kigoma MC	-	0757973307
4	Respilius Kahamba	AG. MWE	Kigoma MC	respiciuskahamba@yahoo.com	0769202969
5	Mbaraka Shemweta		KUWASA	uwassakigoma@yahoo.com	0712665041
6	Mbike Jones	Tech Manager	KUWASA	Mblimo2000@yahoo.com	0677002331
7	Charles Kiwelu	GIS officer	KUWASA	kiwelu88@yahoo.com	0677002344
8	Claudius Kaje	Internal Auditor	KUWASA	linusclaudius@yahoo.com	0742746631
9	Josephat M. Magati	Technician	Kigoma RS	josephat.magati@yahoo.com	0769413186
10	Hashim S. Kabelwa	Chemist	Kigoma Water Quality Laboratory	Hashim.kabelwa@maji.go.tz	0712266350/0769446026
11	Kornel Odida	WR Engineer	LTBWB	Odemba.kornel@yahoo.com	0758497043
12	Elishaphat Ruzevmya	Forest and Environmental Officer	Kigoma MC	-	0752213351

Appendix II: Training schedule

WATER SAFETY PLANS TRAINING SCHEDULE VETA training institute –Kigoma: 19th September 2016

Day One

Time	Activity	Responsible
0830 – 0900	Participant arrival and Registration	Secretariat
0900 – 0920	Introduction of Delegates and Logistics	Secretariat
0920-0930	Welcome remarks	RAS
0930-0940	Objectives and expected outputs	Likangaga
0940 – 0950	Statement from MoHCDGEC	ADEHS
0950 – 1020	Opening Remarks MoW	Ass Director, Water Quality
1020 – 1100	Group Photo and Health Break	All
1100 – 1120	Overview of the Project	Likangaga
1120 – 1140	Overview of WSP	Chacha
1140-1200	Contents of the WSP Guidelines	Hussein
1200 – 1315	Plenary Discussion	Bwire
1315 – 1400	Health Break	All
1400-1430	Overview of the operation of water supply in Kigoma urban (challenges and success stories)	KUWASA
1430-1500	Introduction to WSP steps	Alex
1500 – 1630	Step 2 (System description)	Alex
1630-1700	Plenary discussion	Nyaindi
1700	Health Break and End of Day	All

Day Two

TIME	ACTIVITY	RESPONSIBLE
0830 – 0900	Participant arrival and Registration	Secretariat
0900 – 1000	Step 3 of the WSP (hazard identification), Step 4 (control measures/Validation)	Hussein
1000 – 1030	Health Break	All
1030-1230	Field Visit (Water system layout)	Nyaindi
1230-1330	Group discussions on field visit (including sketch and presentation) of the water system by participants, hazard identification/risk assessment	Alex
1330 – 1430	Health Break	All
1430 – 1630	Preparation of group presentation	Hussein
1630-1700	continued	Nyaindi
1700	Health Break and End of Day	All

Day Three

TIME	ACTIVITY	RESPONSIBLE
0830 – 0900	Participant arrival and Registration	Secretariat
0900 – 1030	Group work on field visit	Groups
1030 – 1100	Health Break	All
1100-1300	Group presentations and discussions	Group leaders
1300-1400	Health Break	All
1400-1420	Step 5 (Overview of WSP improvement planning process)	Alex
1420-1630	Development of WSP implementation plan	All
1630-1700	Health break and evaluation of day 3	Secretariat

Day Four

TIME	ACTIVITY	RESPONSIBLE
0800 – 0830	Participant arrival and Registration	Secretariat
0830-0850	CR-WSP experience from Ethiopia	Osman Yiha
0850-0920	Operational layout of water system and existing WSP	KUWASA
0920-0930	Plenary discussion	Hussein
0930-1030	Refinement of risk assessment tables	Groups
1030 – 1100	Health Break	All
1100-1130	Step 6 and 7 of Water Safety Plans (Operational Monitoring and Verification)	Barthasar
1130 - 1330	Management procedures (Step 8) and supporting programs (Step 9), WSP team (Step 1) & WSP review (Step 10)	Alex G/Barthasar
1330 – 1430	Health Break	All
1430-1630	Development of Urban water Utility WSP implementation plan – Group work	Osman Yiha/ Alex G
1630-1700	Link between Climate Change, Health and WSP	Osman Yiha
1700-	Health break and end of day	All

Day Five

TIME	ACTIVITY	RESPONSIBLE
0800 – 0830	Participant arrival and Registration	All
0830- 1030	Development of Urban water Utility WSP implementation plan	Groups
1030-1100	Health Break	All
1100- 1330	Review and improve the draft CR-WSP plan	Osman/Alex
1330 – 1430	Health Break	All
1430 – 1500	Meeting participants expectations and setting the way forward	Hussein
1500-1510	Vote of thanks from KUWASA	KUWASA
1510-1520	A word from WHO	Tanzania and Ethiopia offices
1520-1525	Statement from Regional Secretariat	RAS- Water sector
1525 – 1530	Closing Remarks	Director –Water Quality -MoWI
1530	Health Break and End of Day	All

Appendix III: Draft Improvement Plan of Action on CR–WSP, Kigoma Urban Water Supply Authority, Sep 2016

Appendix IV: Risk assessment table on CR-WSP, Kigoma Urban Water Supply Authority, Sep 2016