

Water Safety Plans

*Report of the national workshop
Delta Nova, Dili, Timor-Leste, 13-14 October 2009*



**World Health
Organization**

Regional Office for South-East Asia

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report of the
national workshop on
water safety plans

Delta Nova, Dili, Timor-Leste
13-14 October 2009



**World Health
Organization**

Regional Office for South-East Asia

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Introduction

Consumption of unsafe drinking water affects the health of communities and has an impact on morbidity and mortality in developing countries as well as in areas of developed countries. Access to safe drinking water is a basic need and is essential to health.

WHO water quality guidelines published over the last 50 years provide guidance on the parameters that can affect the quality of water and recommends safe guidelines values for a number of parameters. While the previous guidelines emphasized monitoring and sanitary inspections by water and health authorities, the 3rd Drinking Water Quality Guidelines published in 2004 introduced a fundamental change in approach, suggesting a risk assessment and management approach for water safety assurance, through Water Safety Plans.

The Water Safety Plans (WSP) Framework offers the most cost-effective and protective means of consistently assuring a supply of safe drinking water. WSP operates through a catchment to consumer risk assessment and management approach based on sound science and supported by appropriate confirmatory water quality testing. The approach can be applied across a wide range of situations from



household solutions to community water supply schemes to large water supply utilities. The framework offers a means of providing safe drinking water emphasizing an integrated approach that brings together all stakeholders thereby improving public health. The concept of WSP is founded on the principles of Hazards Assessment Critical Control Point (HACCP), a preventative approach, originating from the food industry.

The World Health Organization is providing assistance to Member countries to develop water safety plans according to their needs. Most Member countries have initiated action and are determined to improve the quality of drinking water and thereby reduce the burden due to water-borne illnesses.

The Ministry of Health, Timor-Leste was interested to introduce the concept of water safety plans and in collaboration with the WHO country office in Timor-Leste and WHO/SEARO a national workshop was organized from 13-14 October 2009 in Dili.



Participants of the national WSP workshop

About 58 participants from the national directorate of water and sanitation, district water and sanitation, district administration, district health, ministry of health, local and international NGOs and UN partners attended the workshop.

two

Objectives of the workshop

The general objective of the workshop was to introduce the concept of water safety plans and develop a water safety plan pilot for Dili water supply system.

The specific objectives were:

- (a) To train the participants on development of water safety plans
- (b) To understand the Dili water supply system
- (c) To identify hazards and related risks of contamination and develop control measures to manage the risks



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Inaugural session

The inaugural session was attended by 75 participants from the Ministry of Health, the Ministry of Infrastructure, health and water sectors of districts, UN agencies, local NGOs and the media.

The opening ceremony was graced by Mr Agapito da Silva S, Director-General, Department of Health, Mr Jose Magno, Director, National Directorate for Water and Sanitation (DNSAS) and Dr Paramita Sudharto, WHO Representative to Timor-Leste.

In her address, Dr Paramita highlighted that the workshop was a very important event as Timor-Leste was introducing a new concept for improving safety of drinking water which is the basis for health and survival. She said that water safety plans ensure that the water system is maintained regularly by detecting problems on time and taking immediate actions. She said that according to a national survey, 63% of the population has access to improved drinking water supply. However, data from the Ministry of Health show very high water-borne diseases in the country. This could be contributed by unsafe drinking water and lack of proper hygiene and sanitation. Therefore, it is very important to check water quality and maintain it as per national standards



WR Timor-Leste, Director General of Health and Director of DNSAS at the opening session

to prevent water-borne diseases. She said that the Ministry of Infrastructure's priority for 2010 would be water supply and it is a good time to introduce water safety plans among all the collaborating partners.

The Director-General, Department of Health, Ministry of Health in his opening address welcomed the WHO representative, national directors, district administrators, district health colleagues, district water supply personnel, national and representatives of international NGOs.

He said that drinking water is a basic necessity for all people and among the various development projects, water and sanitation are the most important because of their direct impact on people's health. He said that the Ministry of Infrastructure is responsible for providing water and sanitation facilities whereas Ministry of Health is responsible for monitoring water quality and promoting hygiene and sanitation. Therefore, it is very important for the two ministries to work together to protect public health through delivery of safe water supply. He emphasized the need to set up a system that is properly managed, maintained and monitored. He hoped that during the workshop participants



will learn from experiences of other countries. He said that in addition to the poor piping system, leakage in the system and inadequate measures to prevent contamination at the catchment area, consumer's wasteful behaviour is one of the factors impacting the efficiency of water supply systems. It is important for people to understand that water is precious and that it should be used judiciously. He said that the workshop provided an opportunity to share ideas and learn from NGOs and other partners which would help Timor-Leste in providing safe water to their communities.

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Introduction to the water safety plan concept

Following the introduction of participants and resource persons, Ms Payden, Regional Adviser, Water, Sanitation and Health, WHO/SEARO, made a presentation outlining the concept of the water safety plan. She gave a brief summary of the WHO drinking water quality guidelines. She said that water and sanitation were included as one of the eight components of primary health care in the Alma Ata Declaration in 1978 and said that in the global disease burden diarrhoeal diseases ranked among the top three diseases. The trend is similar in developing countries.

She gave an overview of water quality problems in the South-East Asia Region, the most significant being bacteriological contamination at various points in the drinking water system and re-contamination of stored water within the homes. The main cause of bacteriological contamination is from sewage where pipe networks are leaking or broken and another cause is due to unprotected water sources. Many of the water supply systems in countries of the Region are not regular which compels people to store water. Improper handling of water and improper storage leads to



re-contamination at the household level. Improper storage also leads to breeding of mosquitos which is a big problem especially in countries where dengue and malaria are endemic. With the increasing use of ground water sources, some countries in the Region are faced with the problem of chemical contamination with arsenic and flouride.

She pointed out the significant changes in WHO guidelines for drinking water quality published in 2004, wherein water safety plan was introduced as a preventive tool, which places more emphasis on risk assessment and risk management rather than on analysis of water quality. The water safety plan is an improved risk management tool designed to ensure the delivery of safe drinking water. The three main objectives of the water safety plan are: prevention of contamination of source water; reduction/removal of contamination through water treatment and meeting water quality targets; and prevention of contamination during storage, distribution and individual handling of water. She explained the steps in the development of a water safety plan and its benefits.

Discussions

After the presentation, participants were asked to seek clarifications or pose any questions. The following are some of the questions asked:

- a. A significant number of people suffer from diarrhoea and one of the reasons may be the way people handle water. What can be done to reduce diarrhoeal diseases?

It was clarified that unsafe water is one of the causes of diarrhoea, while there are other factors which contribute to it such as improper sanitary facilities, not washing hands properly at critical times and inadequate water supply.

- b. Can the water safety plan concept be applied in districts, especially with regard to community water supplies?

It was explained that the principles of the water safety plan (WSP) can be applied to any type of system such as small rural piped water systems, rainwater harvesting systems, handpumps, dugwells, pond water and complex city water supply systems. The specifics of the WSP (WSP team, risk assessment, development of WSP matrix etc.) are likely to differ in several aspects as the urban water supply is provided by utilities while the rural water supply is usually provided by a community-based organization.

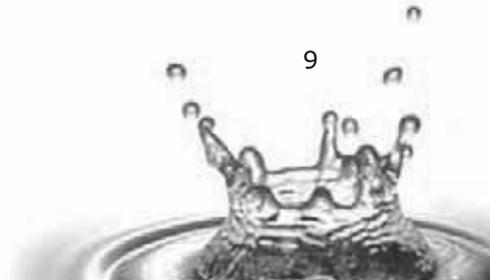
Eg. the assessments tools/materials used in communities should be more pictorial so that it is easily understood by the illiterate.

- c. Does WSP deal only with water quality issues and not quantity?

Water quantity is equally important especially during the dry seasons.

By definition, WSP is designed to ensure water quality but the WSP pilot tests carried out in four countries of the Region demonstrate that WSPs can also address water quantity issues. Eg. while developing WSP in a community in Nepal, the WSP team consisting of beneficiaries identified one of the risks as insufficient water source. The control measure identified by the team was to add another water source to supplement the inadequacy. Appropriate action was taken and the community now has 24X7 water supply.

- d. There was a report from one district about arsenic contamination in ground water. Please share some information on arsenic removal technologies from the Region.



It was stated that the Ministry of Health in collaboration with WHO will carry out a water quality study in Timor-Leste to identify the chemical parameters that are of concern and that need to be monitored. The study will reveal if arsenic contamination is prevalent in groundwater in Timor-Leste. Ms Payden agreed to share some documents on arsenic removal technologies with the National Directorate for Water and Sanitation.

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Group work – assessment of Dili water supply system

The Dili water supply system caters to nearly 62,800 people. The water supply has a mainline of about 84 km and a distribution line of about 69 km. The water for Dili is drawn from four small rivers and 13 boreholes. The system consists of seven storage reservoirs, four water treatment plants, 40 public tapstands and household connections. The water system produces about 28,850 m³ of water everyday.

Four groups were formed to carry out a field assessment of Dili's water supply system. Due to time constraints, the entire system could not be assessed. The entire afternoon of day one was spent on field assessment. Sanitary inspection forms were introduced to the groups which were then used to assess the condition of each component and to identify the risk of contamination and system failure. The inspection forms are attached in annex 1.

Members of group 1 visited and assessed a catchment area and two sources – the river at Taibesi and a bore hole at Kuluhun.





Group 1 at taibesi river source

The main findings were that the river source is not protected and there is risk of contamination by animals and humans. The borehole at Kuluhun is surrounded by houses which poses a risk of contamination by seepage from toilets if it is within 10m from the borehole.



Group 1 at kuluhun borehole

Members of group 2 visited two water storage reservoirs at Bemori and Malinamauk.



Group 2 assessing reservoirs at Bemori and Malinamauk

The findings were that the fencing at Bemori reservoir was not secure and there is no valve box for the valve.

The reservoir at Malinamauk was leaking at the base, the reservoir cover was not locked and some animal dung was found around the reservoir.



Small leak at Malinamauk reservoir

Members of group 3 visited two water treatment plants at Benamauk and Central.





Group 3 at the two water treatment plants

The water treatment plant at Benamauk did not have adequate security. The cover of the storage tank was missing. At the treatment plant at Central, the chlorine dosing unit was out of order and the free-chlorine testing kit was damaged. Spoilt bleaching powder was thrown near the building.

Members of group 4 visited some portions of the mainline, distribution line, three public tapstands and one inhouse connection in the Surikmad and delta 2 areas. The



Stagnant water around public tap

mainline which was visited was in good condition but some distribution lines were leaking and the public tapstand which had small storage tanks was overflowing. Public tapstands



visited did not have a proper drainage system and stagnant water was observed around it. Storage containers in a few houses were not closed properly and were not clean.

Illegal pipe connections as shown in the photograph were observed, which is one of the causes of water wastage in the system.



Overflowing public tap



Illegal connection



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Development of water safety plan matrix

The field visit gave an opportunity for participants to get hands-on-practice in undertaking assessment of various components of a water supply system and to understand the risks and critical control points. On the second day, the morning session was devoted to analysis of data collected by the groups and in developing the water safety plan matrix. The groups had extensive deliberations while reviewing the findings, identifying control measures and fixing responsibilities to manage each of the risks. The WSP matrix developed by each group is given below. A representative of each group presented their WSP matrix after which discussions were held.

Water safety plan matrix developed by Group 1 for two water sources

Water source – Taibesi river

What	Present situation	Risk	Control measure	When	Who	Verify
Upstream of the river	Human settlement and agriculture activities.	Contamination from human waste and agricultural run-off.	Communities should not release their waste into the river.	Daily	Community	WSP team
			Build latrines. Keep animals away from the upstream.	2012	Community	
Intake area	No fencing.	Risk of animal and people contaminating the intake water.	Fencing around the collection chamber.	2012	DNSAS and community	WSP team
Collection chamber	Good condition.	No problem.	Check regularly.		Operator	WSP team
Filtration channel	Always blocked.	Water doesn't flow. Risk of contamination.	Clean the channel.	Daily	Operator	WSP team
Traditional pathway crossing the river	No protection and open area	Contamination of source.	Build a small bridge.	2012	DNSAS	WSP team

Risk of contamination – high

Water source – ground water (borehole at Kuluhun)

What	Present situation	Risk	Control measure	When	Who	Verify
Houses around the borehole area.	No protection around the borehole area.	Contamination if latrines are too close.	Relocate latrines away from the borehole if it is within 10 m.	January 2010	DNSAS	WSP team

Level of risk – medium





Group 1 developing WSP matrix

Water safety plan matrix developed by Group 2 for two reservoirs

Reservoir at Bemori

What	Present situation	Risk	Control measure	When	Who	Verify
Fence	Not secure	People can enter and damage the structure and contaminate water.	Construct a new , concrete fence.	2010	DNSAS	WSP team.
Valve box	No valve box	Valves could be damaged.	Construct a valve box.	2010	DNSAS	WSP team

Level of risk : high

Reservoir at Malinamuk

What	Present situation	Risk	Control measure	When	Who	Verify
Reservoir cover.	No key to cover.	Cover could be opened and water contaminated.	Provide key.	17/10/09	DNSAS	WSP team
Area around the reservoir.	Animal faeces seen.	Contamination of water	Regular cleaning around the reservoir.	Daily	DNSAS	WSP team
Base of reservoir.	Leaking	Contamination of water and decrease in water pressure.	Fix the leak.	21/10/09	DNSAS	WSP team

Level of risk : very high



Group 2 developing WSP matrix



Water safety plan matrix for two water treatment plants developed by Group 3

Water treatment plant at Benamuak

What	Present situation	Risk	Control measure	When	Who	Verify
Filter tank RSP	Corrosion	Contamination.	Apply anti-corrosion paint or replace the tank.	Nov 2009 2010	DNSAS	WSP team
Reservoir tank	Cover of tank broken.	Contamination.	Change the cover.	Nov 2009	DNSAS	WSP team
WTP capacity	Small	Water not enough.	Increase capacity. Create awareness among users to use water wisely and not to waste water.	2010 Nov 2009	DNSAS	WSP team
Security for the WTP	People enter the WTP and threaten the staff to provide water.	Operator afraid.	Need to improve security of the WTP. Need coordination from PNTL (national police of TLS) and FFDTI (army). Need an agreement between DNSAS and PNTL.	Nov 2009	DNSAS	WSP team

Level of risk – high

Water treatment at Central

What	Present situation	Risk	Control measure	When	Who	Verify
Inlet pipe to the filter.	Leakage.	Unclean water.	Fix the leakage.	Nov 2009	SAS	WSP team
Bleaching powder.	Spoilt powder kept at the side of the building.	Environmental problem.	Store in a safe place or dispose it properly.	Nov 2009	SAS	WSP team
Hypo-chloride dosing pump	Out of order.	Water will not be disinfected.	Install new pump. Train operators.	Jan 2010	SAS	WSP team
Chlorine pipe	Blocked.	No chlorination.	Change the pipe, ensure good maintenance.	Nov 2009	SAS	WSP team
Testing kit (free chlorine)	Damaged.	Cannot measure free chlorine.	Purchase new one.	Nov 2009	SAS	WSP team

Level of risk – high



Group 3 in discussion



Water safety plan matrix for distribution line and tapstand developed by Group 4

Distribution line and public tapstand in Surikmad and delta 2

What	Present situation	Risk	Control measure	When	Who	Verify
Line distribution Delta 2	Illegal connection.	Contamination, not enough water to other place.	Need to control illegal connection. Create awareness and penalty.	Immediate	DNSAS	WSP team
Line distribution in surikmad	Illegal connection.	Contamination Not enough water to other place.	Need to control illegal connection.	Immediate	DNSAS	WSP team
Public tapstand	No cover, no tap, illegal connection.	Water contamination. Water wastage.	Provide cover and tap.	Immediate	DNSAS	WSP team
Public Tapstand	No pipeline.	No water supply.	Replace the pipe.	Immediate	DNSAS	WSP team
Hygiene condition.	No drainage around the tap, animal faeces around the tap.	Mosquito breeding.	Health promotion. Provide drainage.	Immediate	MoH, DNSAS	WSP team
Inlet connection.	Tap is broken, socket broken.	Water wastage.	Repair the connection.	Immediate	Household	WSP team
Water storage	Dirty and mosquitoes	Malaria and dengue	Clean	Immediate	MoH	WSP team
Hygiene condition	Dirty	Contamination	Clean	Immediate	MoH	WSP team



Group 4 developing WSP matrix



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Closing session

The closing session was attended by the Director-General, Ministry of Health and the Head of DNSAS, Ministry of Infrastructure. Ms Payden gave an account of the proceedings of the workshop and presented the draft recommendations.

Mr Elias, Head of DNSAS thanked the Ministry of Health and WHO for supporting the workshop. He said that the participants learnt the theoretical concept of WSP on the first day and the field visit had helped them to better understand how system assessments are carried out leading to the development of the WSP matrix. He said that DNSAS will follow up on the plans to ensure that the recommendations and the control measures are implemented.

The Director-General, Ministry of Health, in his closing remarks reiterated that water and sanitation is a part of public health programme and therefore it is very important for the two ministries to work together. The country faces many issues including solid waste, water contamination and provision of water and sanitation to all people. The Ministry of Health is ready to work with all relevant agencies in order to solve various problems. He urged all participants to take back lessons and experiences from the workshop and implement it in their respective districts.

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Conclusions and recommendations

8.1 Conclusions

Participants were motivated by the workshop and were eager to introduce WSPs in their districts. The theoretical part combined with the field visit reinforced their understanding of the WSP concept. The group work stimulated a lot of discussion and strengthened the participants' knowledge in developing a water safety plan. At the end of the workshop, participants expressed the need to further strengthen their capacities for implementing WSPs in their respective areas. They reiterated the importance of bridging the WSP knowledge gaps of policy-makers and the importance of documenting and showcasing the WSP success stories.

During the field visit, participants in four groups carried out system a assessment of some components of the Dili water supply system. The water treatment plants, reservoirs and the boreholes that were assessed were in general found to be in good condition. However, some problems such as unprotected water source, unprotected reservoir, broken chlorination units and leaking distribution pipes were identified. It was also observed that a lot of water is wasted in some areas of the network either through illegal connection or through irresponsible users who keep taps



open all the time. The participants stressed the need for vigorous awareness campaigns to prevent water wastage at consumer levels. Several remedial actions and control measures have been listed in the WSP matrix for which DNSAS agreed to follow up through the WSP team that they propose to establish.

8.2 Recommendations

- Overall it was concluded that the WSP workshop was useful and valuable and that similar events should be conducted in future. The following recommendations were made which need follow-up action by DNSAS and the Ministry of Health:
- The DNSAS to form a water safety plan team (WSP team) at the national level including all relevant Ministries.
- WSP team to carry out system assessment in those components in Dili's water supply system which were not covered during the field visit and then develop WSPs.
- WSP team to adapt the WSP checklist and manual to the local situation including translation.
- WSP team to follow up on the actions of the WSPs that were developed during the workshop.
- Disseminate the WSP results to all stakeholders involved.
- The group observed a lot of water wastage at the consumer level. It was recommended that the Ministry of Health with support from the Ministry of Infrastructure and NGOs working in the water sector should address this issue jointly through community awareness and hygiene promotion interventions.
- The participants acknowledged the time taken in

changing the behaviour of people. However, it was emphasized that concerned agencies should continue to support communities in disseminating messages with proper evidence about the consequences of their actions. The media should be involved to reach a wider community in this area.

- Participants from the districts and NGOs should pilot test water safety plans at the rural community level including schools and town water systems.
- WHO to support in further strengthening capacity of relevant staff from the districts and the national level on water safety plan.



Annex 1

List of participants

1. Mr Francisco Soares
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2. Mr. Antonio Jose E. Silva
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Plan International Timor
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7. Mr Miquel da Cruz
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Director
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Water supply Expert
JICA</p> <p>33. Mr Jose Magno
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Ministry of Infrastructure</p> <p>40. Mr Juiao Baptita
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| <p>41. Mr Pascoal R
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Liquisa District</p> <p>49. Mr Eduardo L de C
District Administrator
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Resource persons

- | | |
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| <p>1. Ms Payden
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Annex 2

Agenda

13 October 2009	
Inaugural Session	
Activity	Presenter
Welcome address	Dr Paramita Sudharto, WHO Representative to Timor-Leste.
Address by the Chief Guest	Mr Agapito da Silva S, Director-General, Department of Health, Ministry of Health
Objectives of the workshop	Ms Payden, Regional Adviser, Water, Sanitation and Health, WHO/SEARO
Introduction to the concept of water safety plan	
Activity	Presenter
Water safety plan concept and regional experiences	Ms Payden, Regional Adviser, Water, Sanitation and Health, WHO/SEARO
Questions and answers	All
Field visit – assessment of various components of Dili’s water supply system	
Activity	Presenter
Briefing on the field visit (division of groups, introduction to sanitary inspection forms)	Ms Payden, Regional Adviser, Water, Sanitation and Health, WHO/SEARO
Field visit to water source, treatment plant, reservoirs and distribution lines	All
Questions and answers	
Sharing of information through an exhibition	



14 October 2009

Development of water safety plan for various components of Dili's water supply system

Activity	Presenter
Group work – analysis of findings and development of water safety plan	All
Presentation of water safety plan developed by each team	Team representatives facilitated by Mr Tito de Aquino, EH Focal Point, WCO Timor-Leste
Discussions	All

Closing session

Activity	Presenter
Presentation of draft recommendations	Ms Payden, Regional Adviser, Water, Sanitation and Health, WHO/SEARO
Remarks	Mr Elias D L, Head, Department of District Water and Sanitation, Ministry of Infrastructure
Closing remarks	Mr Agapito da Silva S, Director-General, Department of Health, Ministry of Health

Annex 3

Sanitary inspection form

Sanitary inspection form

Type of facility – Water source

1. Name of source:
2. Type of source:
3. Date of visit:
4. Visited by:
5. Water samples taken?

Specific information for assessment

1. Is there any evidence of human faeces/latrines 10m from the source? Y/N
2. Are there animal faeces in the vicinity of the source? Y/N
3. Are there agricultural activities upstream of the intake? Y/N
4. Are there any industries upstream of the intake? Y/N
5. Is the fencing around the intake tank broken? Y/N
6. Is the cover on the intake broken? Y/N
7. Is the intake tank blocked? Y/N
8. Is there any evidence of leakage in the tank? Y/N
9. Are there overgrown trees at the intake area? Y/N
10. Is the valve box blocked? Y/N
11. Is there possibility of run-off water getting into the intake (surface drainage not provided)? Y/N

Risk score: 9-11 = very high, 6-8 = high, 3-5 = medium,
0-3 = low



Sanitary inspection form

Type of facility – Mainline

1. General information: Zone: Area:
2. Date of visit:
3. Water samples taken:

Specific information for assessment

1. Is there any evidence of leakage? Y/N
2. Are there any pipes exposed? Y/N
3. Is there any evidence of human faeces in vicinity of the pipe?
Y/N
4. Are there animal faeces in the vicinity of the pipe? Y/N
5. Does the mainline pass through stagnant water? Y/N
6. Is there any evidence of solid waste in the vicinity of the
pipe? Y/N
7. Is there any pipeline crossing culvert? Y/N
8. Are there any illegal connections to the pipeline? Y/N
9. Does the main pipe cross through sewage/pit latrines/septic
tanks/? Y/N

Risk score: 6-9 = very high, 5-7 = high, 3-4 = medium,
0-3 = low

Sanitary inspection form

Type of facility – Distribution line

1. General information: Zone: Area:
2. Date of visit:
3. Water samples taken:

Specific information for assessment

1. Is there any evidence of leakage? Y/N
2. Are there any pipes exposed? Y/N
3. Is there any evidence of human faeces in the vicinity of the pipe? Y/N
4. Are there animal faeces in the vicinity of the pipe? Y/N
5. Does the mainline pass through stagnant water? Y/N
6. Is there any evidence of solid waste in the vicinity of the pipe? Y/N
7. Is there any pipeline crossing culvert? Y/N
8. Are there any illegal connections to the pipeline? Y/N
9. Does the main pipe cross through sewage/pit latrines/septic tanks/? Y/N

Risk score: 6-9 = very high, 5-7 = high, 3-4 = medium,
0-3 = low



Sanitary inspection form

Type of facility – Water treatment plant

1. General information: Area:
2. Date of visit:

Specific information for assessment

1. Are there evident cracks in the sedimentation tank? Y/N
2. Are there leaks in the mixing tank? Y/N
3. Is the mixing tank in an unsanitary condition? Y/N
4. Is the sedimentation tank in an unsanitary condition? Y/N
5. Are there cracks in the filters? Y/N
6. The filter hasn't been backwashed in the last..... months? Y/N
7. Is the chlorine dosing unit broken? Y/N
8. Is there evidence of insufficient or over-dosing of chlorine?
Y/N
9. Are the filter media stored in unsanitary condition? Y/N
10. Is there evidence of unsanitary condition of the chlorine dosing area? Y/N

Risk score: 8-10 = very high, 5-7 = high, 3-5, medium,
0-3 = low

Sanitary inspection form

Type of facility – Reservoir

1. General information: Area:
2. Date of visit:
3. Water samples taken:

Specific information for assessment

1. Is the reservoir not covered? (could birds or animals get into the reservoirs) Y/N
2. Is the cover damaged or broken? Y/N
3. Is the valve box not covered? Y/N
4. Is any part of the reservoir cracked or leaking? Y/N
5. Can run-off form stagnant pools close to the reservoir? Y/N
6. Can stagnant or dirty water collect in valve boxes or washout chambers? Y/N
7. Is the reservoir unfenced and insecure?
8. Is there evidence of faecal material surrounding the valve box? Y/N
9. Has the reservoir not been cleaned in the last one month?
10. Is there evidence of faecal matter surrounding the valve box?

Risk score: 8-10 = very high, 5-7 = high, 3-5, medium, 0-3 = low



Sanitary inspection form

Type of facility – Public tapstands

1. General information: Area:
2. Date of visit:
3. Water samples taken?

Specific information for assessment

1. Do any standpipes leak? Y/N
2. Does surface water collect around any standpipe? Y/N
3. Is there animal faeces in the vicinity of any stand pipe? Y/N
4. Are any pipes exposed close to any tapstand? Y/N
5. Is there human excreta on the ground within 10m from the tapstands? Y/N
6. Is the main pipe submerged in stagnant water? Y/N
7. Are there solid waste dumps 10m from the tapstands? Y/N
8. Does the main pipe pass through sewage/pit latrines/septic tanks? Y/N
9. Are any of the tapstands kept running ? Y/N
10. Is the bibcock broken and leaking? Y/N

Risk score: 8-10 = very high, 6-7 = high, 3-5 = medium,
0-3 = low

Sanitary inspection form

Type of facility – Inhouse connection and water storage at home

1. General information: Household no:
2. Date of visit:
3. Water samples taken?

Specific information for assessment

1. Is the tap leaking? Y/N
2. Is the tap kept running? Y/N
3. Is there any leakage in the inlet pipe of the tap connection?
Y/N
4. Is the area around the tap kept in an unhygienic condition?
Y/N
5. Is the water storage container not covered? Y/N
6. Are there flies around the container? Y/N
7. Was the water stored for more than a week, not changed and
cleaned? Y/N
8. Is there presence of mosquito larvae in the water? Y/N
9. Is there dirt in the stored water? Y/N

Risk Score: 8-9 = very high, 6-7 = high, 4-5 = medium,
0-3 = low



Water Safety Plans (WSP) offer the most cost-effective and protective means of assuring a consistent supply of safe drinking water from source to user.

The World Health Organization is providing assistance to Member countries of the South-East Asia Region to develop Water Safety Plans according to their needs. Most Member countries have initiated action and are determined to improve the quality of drinking water and thereby reduce the burden of water-borne illnesses.

The Ministry of Health, Timor-Leste, in collaboration with the WHO Country Office in Timor-Leste and the South-East Asia Regional Office organized a National Workshop on Water Safety Plans on 13-14 October 2009 in Delta Nova, Dili, Timor-Leste. It was attended by about 60 participants. This is a report of the proceedings of the workshop, and includes the discussion and recommendations.



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