

National Water Supply & Drainage Board
Ministry of Healthcare and Nutrition
UNICEF
WHO

**PLAN OF ACTION FOR THE IMPLEMENTATION
OF WATER QUALITY SURVEILLANCE SYSTEM IN
SRI LANKA**

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1 Introduction

Surveillance of drinking-water quality can be defined as the continuous and vigilant public health assessment and overview of the safety and acceptability of drinking-water supplies (WHO, 1976)

One of the basic principles of an effective control system is the **differentiation of the roles and responsibilities** of service providers from those of regulatory public health oversight.

- a) **National agencies** (MoH, SLS, legislative authority) provide a framework of targets, standards and legislation to enable and require suppliers to meet their obligations
- b) **Water supply agencies** (NWS&DB, Local authorities, CBOs) should be required to verify that the systems they administer are capable of delivering safe water and that they routinely achieve this.
- c) **A surveillance agency** (MoH) is responsible for independent (external) surveillance through periodic audit of all aspects of safety and/or verification testing.

Surveillance requires a systematic programme of surveys that combine auditing, analysis, sanitary inspection, and institutional and community aspects.

2 Water Surveillance Plans

Water suppliers are responsible at all times for the quality and safety of the water that they produce. Water supply agencies are responsible for quality control. Water supply agencies should develop the infrastructure necessary for quality control of drinking-water. (WHO)

On this regard, it is worth to notice that with the launch of the latest WHO Guidelines, a fundamental change in approach to water quality has been proposed (WHO, 2004). Central to these changes are Water Safety Plans. The WSPs move away from sole reliance on end product testing, towards a process of quality assurance and preventive risk assessment and management founded on health-based risk targets.

The most effective means of consistently ensuring the safety of a drinking-water supply is through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchments to consumer” (WHO, 2004)

In other words, water quality is archived through the following steps:

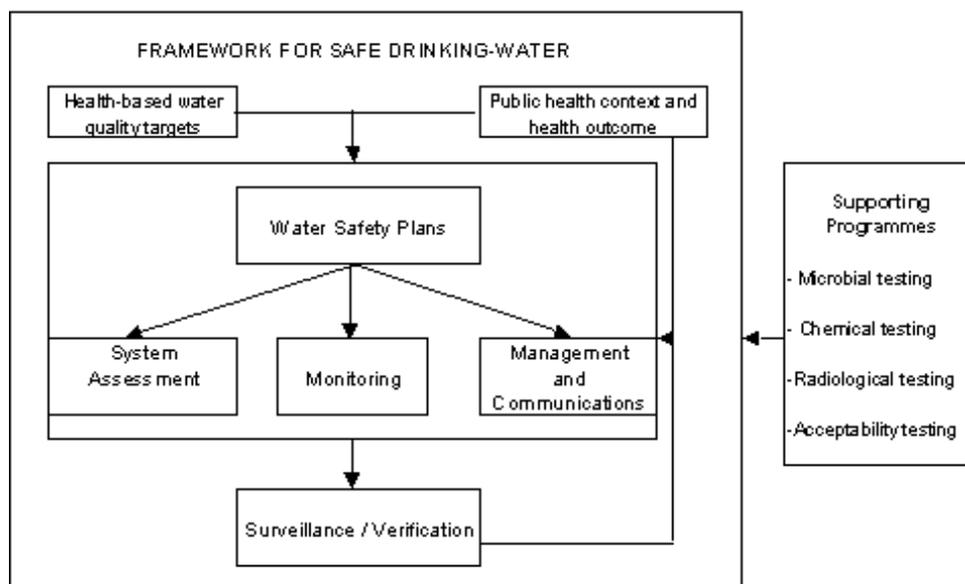
- To prevent contamination of source waters;
- To treat the water to reduce or remove contamination to the extent necessary to meet water quality targets; and
- To prevent re-contamination during storage, distribution and handling (Davison et al., 2004).

A Water Safety Plan is a protocol that is meant to reach this target.

The Water Safety Plans (WSPs) are founded on the principles of HACCP (Hazard Assessment Critical Control Point), a preventative approach used in the food industry.

WSPs help the water supplier to:

- Identify the source of contamination (hazard);
- Develop methods to control the hazard;
- Monitor when the supply is in compliance; (sanitary inspections, water testing) and
- Verify the effectiveness of the whole system (auditing form the surveillance agency)



3 Present situation

According to food act no. 26 of 1980, no person shall manufacture, import, sell or distribute any food that is unfit for human consumption.

Potable water shall conform to the SLS 614, 1983 (Part I and Part II) for the Physical, Chemical and Bacteriological requirements.

Sri Lanka Standard SLS 614 – Part 1 and 2 (1983) defines the specifications for drinking water quality, in terms of acceptable chemical, physical and bacteriological characteristics. SLS 614 also specifies the acceptable detection methods, and the frequency of sampling for the bacteriological part.

SLS 614 is the official guide regarding the water quality testing. As said, water quality testing is only one component of surveillance.

In Sri Lanka water supply is provided by a number of means and actors:

- Piped water schemes, managed by the NWSDB, local authorities and CBOs.
- Communal wells, equipped with hand pumps, normally managed by CBOs, sometimes with the technical support of local authorities and NWSDB.
- Communal wells not equipped with pumps, managed by local authorities and CBOs.
- Private wells.

At the present moment, NWSDB and few others such as Municipal Councils carries out monitoring of the water distributed to the public. Monitoring of the quality of the water produced and distributed by other agencies is, if at all present is episodic. Water quality testing in the rural schemes is carried out on ad hoc basis by PHIs, but normally only when an epidemic of water born diseases is detected or in cases of suspect contamination of the water sources. Moreover, there is no mechanism ensuring the safety of the water in communal and private wells, technology accountable for up to 85% of the water supply, is present.

4 Proposed Framework

The water quality surveillance will be based on water safety plans, to be developed for each technology, and implemented by the responsible person/team of each scheme. The cost of the implementation of the water safety plans shall be met by the service provider.

One of the basic principles of an effective control system is the differentiation of the roles and responsibilities of service providers from those of regulatory public health oversight.

However, it is recognized that the technical expertise in terms of water quality and pipe scheme management lies mainly with the NWSDB and, for what the rural schemes are concerned, with RWSSD. MoH does not have sufficient capacity, in terms of skills and manpower, to effectively review the water safety plans of every scheme. The NWSDB, therefore, should cover the double role of water provider and, at the same time, support all the rural water supply schemes managed by CBO or local authorities. When appropriate, the NWSDB will coordinate with the RWSSD in this regard.

At the same time, the laboratories of the NWSDB will work as service providers for third parties, upon payment according to a fixed tariff system.

The responsibility of surveillance of the individual private wells will lie with the owner of the facility. A communication strategy must be developed to sensitize the citizens on the issue of water quality, and on the need of conducting periodic maintenance and care. The MoH, through PHIs and Midwives, will have a central role on this regard.

The proposed basic framework of the Water Quality Surveillance System is as follows:

- Every water provider must prepare a Water safety Plan for each pipe water scheme managed by the provider itself. Water Quality testing and record of the surveillance activities will be part of the WSP. The District Laboratories will be in charge of conduct annual/seasonal water testing of the final product.
- The NWSDB, in conjunction with the RWSSD, will prepare a set of standard WSPs to be utilized by CBOs and Local authorities, and conduct training to the caretakers of those schemes, or hand pumps. Routine Water Quality testing and record of the surveillance activities will be part of the WSP. The District Laboratories will be in charge of conduct annual/seasonal water testing of the final product.

- A standard, simple Water Safety Plan for private rural water points will be prepared, to be implemented by the users themselves, and disseminated by MoH through PHIs, Midwives, schools and media campaign.
- **A Regional Water Quality Surveillance Committee** is established in each Region. This committee is formed by
 - The Food and Drugs Inspectors (from DPDHS office),
 - Regional manager and the responsible of the District Laboratories (from NWS&DB),
 - Representative of RWSS (when relevant),
 - District Secretary.

The committee will collect the water safety plans, and forward to the central committee with observations and recommendations. This committee will meet periodically, and will be responsible for

- Collect the water safety plans from the water providers
- Review all the applications for registration
- Data management of service providers, analytical data, surveys, inputs from stakeholders

The NWSDB will provide the necessary logistic and technical support to the committee for the implementation of those tasks. The regional committee will report to the Central Committee

- At National level, **Central Water Quality Surveillance Committee** is created. This committee is formed by
 - NWSDB
 - MoH
 - SLSI
 - RWSS
 - Ministry of PC&LG
 - MRI (microbiologist)
 - CEA
 - Government analyst

Under the responsibility of the GM from the NWSDB, the committee will meet quarterly, and will be responsible for

- Maintain a registry of suppliers
- Define policy implementation issues
- Coordination with other sectors
- Issue guidelines and standards
- Define Hygiene Promotion strategy
- Approve the registration of new suppliers
- Periodic renewal of the programme

The NWS&DB will provide the necessary logistic and technical support to the committee for the implementation of those tasks. The National committee will provide feed-back to the regional committees when appropriate.

- A national register of water schemes is established at Colombo level. The NWS&DB will be the custodian of the Register.
- The water provider (with the assistance of NWSDB and/or RWSS) shall prepare a WSP. Upon completion of WSP, the NWSDB (or RWSS) will recommend the registration of the supplier to the Regional Water Quality committee.
- While routine monitoring is responsibility of the service provider, the District laboratories of the NWSDB will conduct periodical (annual) checks of the water quality of the schemes as per WSPs. The cost of the analysis will be met by the service provider. A feed-back on the results of the analysis will be provided to the service provider, alongside with recommendations for corrective actions. A copy of the analysis will be sent to the Central Laboratory in Colombo. Sanitary inspections on private wells, and promotion of WSP, will be responsibility of the PHIs.
- The Regional Water Quality Surveillance Committee audits the performance of the WSP in the rural schemes via periodical (seasonal/annual) testing of the water as per WSP. The DPDHS office, via the Food and Drugs Inspector and PHI has faculty to audit the performance of the District laboratory managed by the NWSDB, and conduct periodical visits to all water schemes, inspect the records kept from the caretakers, and take water samples to be sent to an independent laboratory.

5 Implementation strategy

According to the above mentioned framework, the NWSDB will assume the important role of being proactive in supporting and following up with the CBOs in their effort of establishing, and maintaining, the water quality surveillance in their systems.

The NWSDB will be called to perform the following tasks:

- Upgrade the District and Central Laboratories, including the establishment of Quality Assurance and Quality Control policies.
- Establish, and implement Water Safety Plans for all the schemes managed directly.
- In coordination with RWSS, design WSP for rural schemes, and train CBO personnel
- Advise CBOs on what water quality material should be purchased, and act as supplier (or facilitate) for consumables (mainly free chlorine tablets)
- Assist CBOs in technical troubleshooting in terms of water quality
- Collect and analyze water samples, and feed back to CBOs the results, as well as advise on corrective actions to be taken.
- Collect, and maintain a database with all the relevant information regarding water quality at District level
- Coordinate with DPDHS office in the maintenance of the WQSS
- Create a communication network between district laboratories and central laboratory
- Create and maintain a central database on water schemes, water quality information, and performance of the WQSS. Generate periodic reports for the Central committee for water quality

Some of those tasks can be performed within the existing network of laboratories: however, it is likely that new human and financial resources has to be allocated, and possibly it might be necessary to create, in the Districts where it is relevant, a new unit, designed to provide support to the CBO based schemes. A cost recovery system, to compensate the service provided to the CBOs, has to be defined as well.

On the other side, MoH, and, in particular, the DPDHS offices will be in charge of designing, and implementing, an awareness campaign for the implementation of the Rural Surveillance System, and as a whole, enforcement of Surveillance.

A suggested implementation strategy:

Upgrading equipment and personnel of the network of District Laboratories, and establishment of QA/QC procedures (on-going, with the support of UNICEF)

Preparation, and field testing, of standard Water Safety Plans, one for each technology normally adopted by CBOs. (UNICEF starting a pilot project in Hambantota and Matara District with NWSDB)

Preparation, and field testing, of viable WSPs for rural private water points, for different rural technologies (wells, rainwater harvesting systems, protected springs...) including a communication strategy for the dissemination of the message between the users. (UNICEF starting a pilot project in Galle District with DPDHS)

Preparation of standard Water safety Plans for each technology adopted by the NWSDB. Pilot projects to be implemented in a selected number of schemes representing a sample of the different technologies adopted by the NWSDB.

National workshop, to discuss and approve the structure of the WQSS

District Workshops, to illustrate the WQSS structure at District level to all stakeholders

Appointment of a WQSS focal person in each NWSDB District Office (O&M manager and/or chief chemist?).

Training of WQSS teams on the experiences of the pilot projects.

Draft new TORs for the District and Central laboratories, including staffing requirements to cope with the new tasks. Establishment of District CBO Support Unit for Water Quality

Establishment of District and Central data management units.

Establishment of Regional and Central committees

Within a period of one year, gradual introduction of WSPs in CBO and NWS&DB schemes

Gradual introduction of Rural Water Safety Plans through promotion campaigns from PHIs, Midwives. Communication campaigns through schools, media, universities...

6 Proposed plan of action

	Action	Timeframe
Review and approval of the present Plan of Action	WQSS steering committee	August 2006
Pilot Project for the design and testing of Water Safety Plan for rural water schemes	NWSDB, RWSS, assisted by UNICEF	September 2006 – February 2007
Pilot Project for the design and testing of Rural Surveillance	MoH assisted by UNICEF	September 2006 – February 2007
Equipment and training for District and Central laboratories. Drafting QA/QC protocols	NWSDB, assisted by WHO and UNICEF	January-December 2006
Preparation, and field testing, of standard Water Safety Plans, in CBOs.	UNICEF ,NWSDB	
Preparation, and field testing, of viable WSPs for rural private water points,	UNICEF , DPDHS	
Preparation of standard Water safety Plans for each technology adopted by the NWSDB. Pilot projects to be implemented in a selected number of schemes representing a sample of the different technologies adopted by the NWSDB.	NWSDB - UNICEF?	
National workshop, to discuss and approve the structure of the WQSS	NWSDB, MoH, UNICEF	
District Workshops, to illustrate the WQSS structure at District level to all stakeholders	NWSDB, UNICEF	
Appointment of a WQSS focal person in each NWSDB District Office (O&M manager and/or chief chemist?).	NWSDB	

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Training of WQSS team on the experiences of the pilot projects.	NWSDB (UNICEF)	
Draft new TORs for the District and Central laboratories, including staffing requirements to cope with the new tasks. Establishment of District CBO Support Unit for Water Quality	NWSDB	
Establishment of District and Central data management units.	NWSDB, MoH	
Establishment of Regional and Central committees	NWSDB, MoH	
Within a period of one year, gradual introduction of WSPs in CBO and NWSDB schemes	NWSDB	
Gradual introduction of Rural Water Safety Plans through promotion campaigns from PHIs, Midwives. Communication campaigns through schools, media, universities...	MoH	