

# Ministry of Water Supply and Drainage

## Cabinet Memorandum

Establishment of a Water Quality Surveillance System in Sri Lanka
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### ***Background***

The most commonly adopted definition of drinking water surveillance is:

“the continuous and vigilant public health assessment and review of the safety and acceptability of drinking-water supplies” (WHO, 1976).

Surveillance is needed to contribute to the protection of public health by promoting improvement of the quality, quantity, accessibility, coverage, affordability and continuity of water supplies (known as service indicators) and is complementary to the quality control function of the drinking-water supplier. (WHO, 2004). Proper surveillance requires the development of Water Safety Plans (WSPs) as a tool.

It must be emphasized however that drinking-water supply surveillance does not remove or replace the responsibility of the drinking-water supplier. The supplier remains very responsible to ensure that a drinking-water supply is of acceptable quality and that it meets the requirements of the laws.

The surveillance agency needs to have expertise on supplying drinking-water and water quality and the laws pertaining to the same and have the capacity and authority to carry out a process of review and approval of WSPs. It needs to support the development of WSPs for community-managed drinking-water supplies, household water treatment and storage, and management. The water supply agency needs to also have the capacity and authority to ensure that any transgressions that may occur are appropriately investigated and resolved.

One of the basic principles of an effective control system is the differentiation of the roles and responsibilities of service providers from those of the surveillance agency. However, it is recognized that at present in Sri Lanka, none of the agencies excluding service providers, has the necessary technical expertise, capacity and legal authority to carry out all of the above mentioned tasks of surveillance. It is therefore necessary that the surveillance will be implemented through a mechanism of appropriate

collaboration between the Ministry of Health (MoH) and the Ministry of Water Supply and Drainage (MoWSD) utilizing the services of the National Water Supply & Drainage Board(NWS&DB).

Specifically, the NWSDB and MoH will cooperate in the following areas of activity:

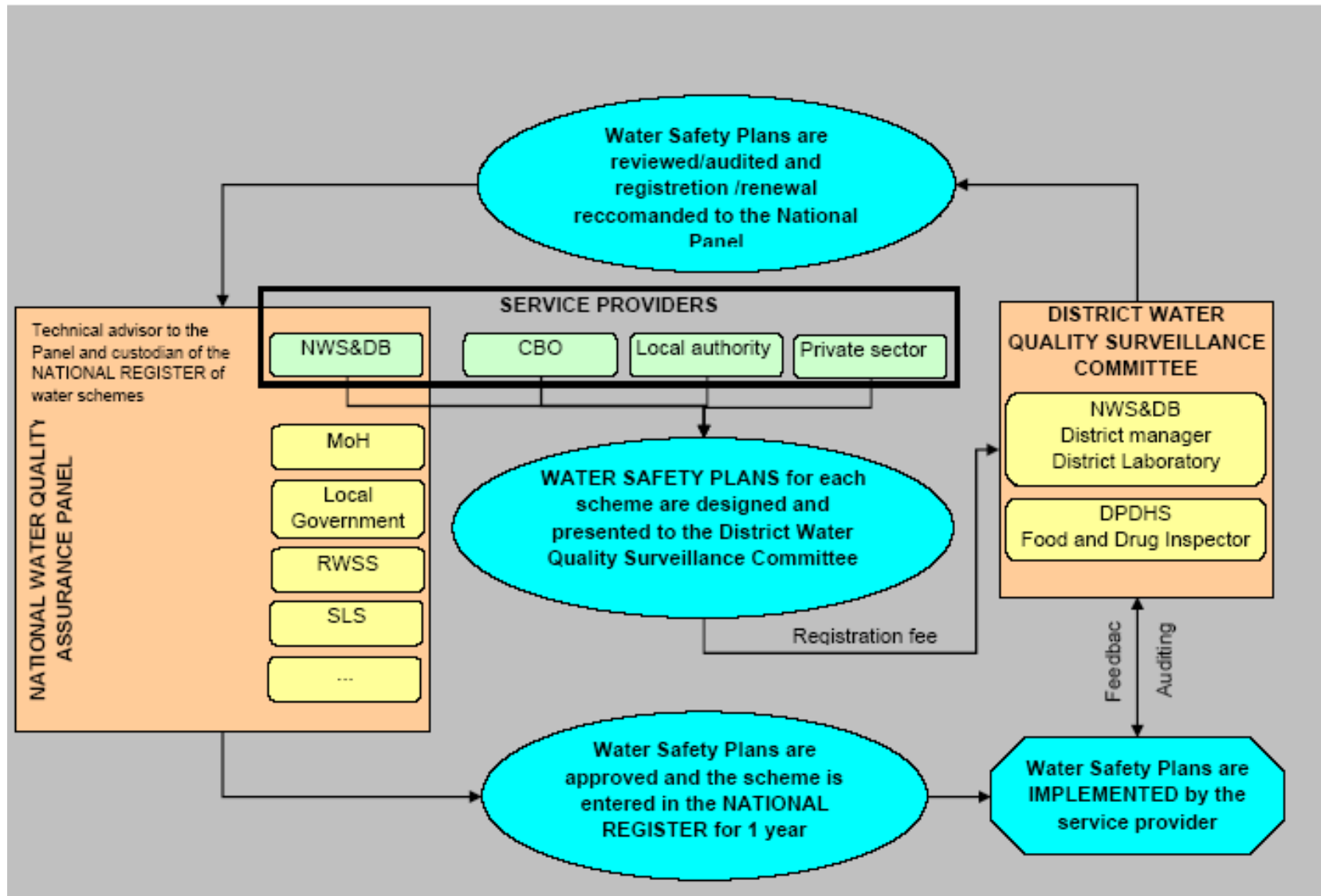
- In assessing the overall drinking-water supply situation in the country, through the development of a register of all piped water supply systems, and the periodic review and update of coverage and safety adopting service indicators;
- In the development of WSPs for community-managed drinking-water supplies and household water treatment, storage and management;
- In promoting inter ministerial level the development and implementation of comprehensive policies on catchments protection and proper water management;
- In public health oversight and information support for rural drinking-water supplies, both community based and household based, through development and dissemination of generic WSPs for each main technology (wells, springs, rainwater harvesting systems, reticulated systems etc.);
- In public health oversight of drinking-water supplies, through the adoption of, as appropriate, WSPs prepared by the supplier for each individual scheme; and
- In participation in the investigation of and reporting on the outbreaks of waterborne disease and in instituting remedial action.

A separate MoU will be prepared to formalize the detailed terms and responsibilities between the NWSDB and MoH for the above mentioned collaboration.

### ***The Approach and Layout of The Water Quality Surveillance System***

A WSP, the basic tool for surveillance, should be developed specifically for each individual water supply system, whatever the size and complexity. The responsibility of developing the WSP lies with the water supplier, be it a national board, local authority, CBO or private sector (concessionaire, owner)

WSPs will be presented to the duly appointed District Water Quality Surveillance Committee for approval and registration. The District Water Quality Surveillance Committee will audit the WSPs and report to the national level. A schematic layout of the system is presented in the next page.



## **District Level**

At District level, a Water Quality Surveillance Committee is established under a separate ordinance.

The District Water Quality Surveillance Committee will.

- Review new WSPs, or proposals for amendment;
- Approve, or recommend improvements to, WSPs;
- Enter the water scheme in the register of Schemes Under Surveillance;
- Audit the implementation of WSPs;
- Respond to, investigate and provide advice on reports on significant incidents;
- Discuss on the progress of the introduction of WSPs in rural areas;
- Agree on strategies, including Household Water Treatment and Storage (HWTS) and dissemination of hydrogen sulphide (H<sub>2</sub>S) kits, for the introduction of the WSPs, in rural areas;
- Review and discuss periodical data collection and update of safe water coverage and other service indicators; and
- Report to the National Water Quality Surveillance Committee.

Periodic audit of WSPs will include:

- the examination of records, to ensure that system management is being carried out as described in the WSP,
- ensuring that operational monitoring parameters are kept within operational limits, and that compliance with the plan is maintained;
- ensuring that verification plans are followed, and
- in some circumstances, sanitary inspection, which may cover the whole of the drinking-water system, including sources, transmission infrastructure, treatment plants, storage reservoirs and distribution systems.

Periodic audit of implementation of WSPs will be carried out. The frequency will be decided by each District Water Quality Surveillance Committee on the basis of size of the population served and the nature and quality of source water / treatment facilities and the available capacity and resources.

An audit of the WSP will also be conducted following significant incidents. In those cases, it is necessary to ensure that:

- the event is investigated promptly and appropriately;
- the cause of the event is determined and corrected; and
- the incident and corrective action are documented and reported to appropriate authorities

### **National Level**

At national level, a Water Quality Surveillance Committee will be established under a separate ordinance.

The Committee will be co-chaired by the NWSDB and MoH.

The National Water Quality Surveillance Committee will;

- Provide overall guidance in the establishment phase of the Water Quality Surveillance System (WQSS) and guarantee uniformity of approaches all over the country;
- Facilitate the establishment of the District Water Quality Surveillance Committees;
- Coordinate and streamline the work of the District Water Quality Surveillance Committees;
- Approve, or recommend improvements to the set up of the WQSS;
- Discuss, and provide recommendations on water quality related issues;
- Assess the overall drinking-water supply situation in the country, through the development of a national register of piped water supply systems and oversee the updating of safe water coverage and other service indicators;
- Discuss the reports coming from the sub-national level regarding the outbreak of waterborne disease; and
- Promote at inter ministerial level, the development and implementation of comprehensive policies on catchment protection and proper water management.

Pilot projects have taken place with the aim of providing useful information on good practice for the establishment of WSPs, community based water supply schemes, and decentralized rural schemes.

The results of those projects are attached, for reference purposes only.

### **Approval of Cabinet**

In consideration of the above, the approval of the Cabinet is sought to introduce and implement Water Quality Surveillance in the country based on the framework developed by NWS&DB with the help of the Department of Health. It is proposed that NWSDB provides the leading role in the implementation of the above proposal

### ***Attachment 1 - Introduction of Water Safety Plans***

Central to the achievement of the objectives of water quality surveillance is the introduction of a risk assessment and risk management approach, through the implementation of Water Safety Plans (WSPs).

A WSP is essentially a framework of hazard identification, risk assessment and risk management measures. The WSP must include all steps of the water supply system, from the catchment to the consumer, and identify, for each element, control measures and monitoring protocols, and provisions in the case of catastrophic incidents. Those principles and concepts which are common to other risk management approaches, in particular the multiple-barrier approach and HACCP (Hazard Assessment and Critical Control Point), which are extensively adopted internationally in the food industry require to be adopted.

In a WSP, the implementation of monitoring protocols (routine operational monitoring) is normally carried out at plant level, on a daily or high frequency basis.

Verification of drinking-water quality, on the other hand, provides an indication of the overall performance of the WSP through comprehensive water quality testing, and is normally carried out on an annual, or seasonal basis, and can be conducted by a third party. The verification plan is part of the WSP, and provides a benchmark of the drinking-water system and the ultimate quality of drinking-water being supplied to consumers. This incorporates monitoring of drinking-water quality, as well as assessment of consumer satisfaction.

Once prepared, each WSP must be validated. Validation is an investigative activity to identify the effectiveness of a control measure; therefore it is not used for day-to-day management of the water supply.

It should ensure that the information supporting the WSP is correct, thus enabling achievement of health-based targets. The first stage of validation is to consider data that already exist. These will include data from scientific literature, trade associations, regulation and legislation departments and professional bodies, historical data and supplier knowledge.

The WSPs are instrumental in the identification of high risk hazards to water quality, minimizing adverse impacts and can be adopted in all situations.

- In complex systems, the WSPs identify the specific roles and duties of each actor, and help to streamline the production and distribution process.
- In a more simple context of small decentralized rural systems (i.e. wells and rainwater tanks) the WSPs help to identify the most effective simple actions to be implemented by the owners (i.e. simple improvements, ordinary maintenance, household level water treatment and storage).

In all cases, the water supplier or producer of water is the key player in a WSP but other stakeholders have significant roles particularly in a community based scheme or a public water source.

A WSP is a living document, and can (must) be updated whenever a substantial change is made to the source, the distribution or the storage system, or treatment process.