

# **A STUDY ON MANAGEMENT OF DRINKING WATER QUALITY**

**Theme: Audit on Drinking Water Quality in Malaysia**

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## **Background**

Water is commodity for all human beings. Thus supplying clean and high quality drinking water are become main concern to the government. Realizing this, Ministry Of Health has taken step in introducing drinking water quality control program.

Drinking water quality control program is one of the ways for Ministry Of Health monitors quality of drinking water. National Drinking Water Guideline which includes monitoring activities, sanitary survey, remedial action, data processing and institutional examination are tools to achieve objective of this program. Moreover, involvement from national level, state level and district level are needed in order to ensure successfulness of the program.

Quality of drinking water need to be assessed from the source, which will include water catchment areas then, water treatment plant, balancing tank, service reservoir and finally reticulation and distribution point.

On the other hand, this study is subject to National Water Services Commision Act 2006 (Act 654) and Water Services Industry Act (WSIA, Act 655).These act covered all states in Peninsular Malaysia, excluding Sabah and Sarawak which are subject to The Water Supply Enactment.

## **Objective of the Study**

The audit objective is to assess whether planning, controlling and monitoring of drinking water are in accordance with The National Standard for Drinking Water Quality set by the Ministry Of Health.

## **Audit scope and methodology**

The study included 13 states in Malaysia and period covered are from year 2006 up to 2008. Files, records and relevant documents were scrutinized. Relevant officers were interviewed in order to gain information regarding the study. Physical visits to 42 water treatment plant sample in several states were also conducted in order to observe the audit findings. Nevertheless, distributions of questionnaires were conducted to evaluate the feedback of water quality from users.

## **Audit findings**

There are number of weaknesses found in the drinking water quality management:

### **WATER RESERVOIRS**

Laws and regulations are prohibiting any activities to be carried out in water catchment area and reservoirs. Unfortunately, no legal action can be enforced as water catchment area and

reservoirs are not gazetted. Activities such as plantation, agro forestry and factory operation that have been carried out near the water catchment will indirectly contribute to low water quality

## **WATER TREATMENT PLANT**

Water treatment plant is not fully equipped for lab testing especially for pH test, chlorine test, turbidity and aluminum residue test which is crucial in testing the water quality before supplying it to the users.

Next, staffs need to be well trained in ascertaining the result from the test in measuring the drinking water quality. Sample testing that has been carried out by the uncertified chemist can be misleading. Furthermore, inconsistency in conducting test will lead to invalid comparison among states to measure the quality of drinking water as the time taken for the sample is not standardize. Record of the test is also not properly kept.

Sludge is the waste discharge during the water treatment process. This sludge need to be firstly discharge into sludge lagoon system before it can be released into the river. In contrary, this sludge has been straightly released into the river which caused river to be polluted.

There are certain dosages of fluoride need to be added in the treated water required by the Ministry Of Health for the purpose of medication especially to prevent tooth decay. However, only 79.94% of fluoridation dosage system is fully operated which operation of this system is depending on budget allocation on each water treatment plant. On the other hand, there are conflicts between water supply entity and Ministry Of Health regarding the range of dosage of fluoride between 0.4mg/l – 0.6mg/l which is likely not achievable. In addition to that over dosage of fluoride will lead to poisoning, increasing in cost of buying and shortage in supplying the fluoride.

## **BALANCING TANK AND SERVICE RESERVOIR**

Cleaning tank program need to be carried out regularly and consistently in ensuring the cleanliness which lead to quality of water supply to the users. There are some supply water entities that did not have the schedule cleaning program and it only carried out on ad hoc basis when there are complaints by the users. In contrary, some perceived this program will caused distraction in supplying water to users and increase rate for Non Revenue Water (NRW). This is not true in a way that each balancing tank and service reservoir are equipped with the by-pass system in ascertaining the continuity of water supply to the users.

Water sampling station is important in testing the water in order to see the quality level. Nevertheless, there some of the places that did not have the Water Sampling Station and no regular maintenance are conducted in the existed station.

Quality Assurance Program (QAP) is the standard required by the Ministry Of Health. The drinking water quality result is compared to Quality Assurance Program (QAP) to evaluate the performance of state in supplying quality water. Percentage of incompliance to the standard is analysed and improvement is recommended.

## **DISTRIBUTION AND RETICULATION POINT/PIPE**

Pipe cleaning program should be in place in ensuring supplied water is clean and safe for users to drink. Cleaning program has been properly schedule and carried out by the state level. Yet still there small did not followed the cleaning program schedule as they did not want to risk the distribution of the drinking water to the users.

Quality of drinking water can also be measured by the number of complaints received from the users. On the other hand, this will also help in identifying the areas that having disturbances in water supply as a result of leakage. Customer service center is a medium for the users to lodge any complaints about the quality of the water supply by the entities.

Customer satisfaction research that has been conducted will support the findings. Collectively, users are satisfied with the service yet percentage on several states with the score below 15% needs further attention.

## **ACTIONS TAKEN**

Drinking water management in Malaysia was satisfying. Nevertheless, there are some aspects that need to improvised and continuously monitored. Several initiatives have been taken regarding the matters.

Water supply entities have been suggested to take into account cost for development of sludge treatment in their business plan by the National Water Services Commission. Sludge system will be developed phased by phased as a result of high cost involvement.

Water treatment plant status regarding cleaning research, in-situ test and analysis result has been documented as required by the Ministry Of Health. In the other hand, Ministry Of Health is only a monitoring agency where enforcement does not lie on their hands and yet it is a responsibility of management of water treatment plant in complying with the required standard.

Malaysia Water Forum has been established and recognised by the National Water Services Commission act on behalf of users. It will provide input in handling complaints from users.

National Water Services Commission has taken first step in prepared the syllabus and standard test for plumber with the cooperation with Construction Industry Development Board (CIDB). Certificate will be given to those who take up the test and this is one of ways in improving the professionalism and skill of national plumber. At the same time they will set up the qualification and competency standard required for staff in ascertaining the reliability of test and analysis in controlling the quality of water.

## **CONCLUSION**

In line with the global importance of drinking water, government devotes a lot of attention and efforts on this topic. On the hands, audits help to raise the consciousness towards the relevance of water problems and as a consequence suggestion were made in improving it.