

Water purification methods: A case study in Mihintale in Anuradhapura district of Sri Lanka

Extended Abstract

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Background

Millions of people in the world die every year from water borne diseases. Such as cholera, typhoid, tooth decay and bowel diseases (S.Chanda, 1992). Water quality is defined in terms of the chemical, physical, and biological content of water. Biological Oxygen Demand (BOD) relates to the amount of organic material in the water. (Tebbutt, 1998). Filtration in various forms is so far the only method to clean water, apart from UV- purification, whether it is a traditional slow sand filter or a reverse osmosis system or a modern, large scale filter in a water purification plant.

Although less than 1% of the water on this blue planet is fresh water suitable for human use and a lot of water we do have is enough to support everyone (Bryan, 1997). As a result of reduction water quality Sri Lanka day by day is increasing kidney disease is evident . The worst affected areas in the Anuradhapura District are Padaviya, Madawachchiya, Kebetigollewa, Rambewa, Mihinthale and Mahawillachchiya (Amarasiri, 2015). Therefore, various types of water purification methods are used in this area. This is currently an issue in Mihintale. In Mihintale has many water purification methods but water borne diseases are not reduced. Looking for existing appropriate technology for purifying water in Sri Lanka with a special focus in Mihintale. Background is also provided on water, the diseases associated with unsafe water and their effect on people. Mihintale is the one of areas which is suffering from the water borne diseases.

Objectives

The overall aim of this study was to identify drinking water purification methods in Mihintale Divisional Secretariat division, to examine whether reducing or increasing existing problem although several types of purification methods, to calculate water quantity that was used by a man per a day, to identify issues related methods of water purification and to proposed suitable water purification method for Mihintale area.

Methodology

Both primary and secondary data were used for this study. Primary data were collected by field observation, using questionnaire and participatory observation. The study was conducted in Mihintale Grama Niladari division. 30 respondents were selected in Mihintale GN division. Books, magazines, newspaper articles leaflets and internet were used as secondary data. Both Qualitative and quantitative methods were used for data analysis. Graphs, charts and tables in Excel were used to present the data.

Results

This study mainly used that questionnaire for selected 30 people of random sample whose are live in Poson Mawatha area in Mihintale. High percentage of people gets water for their domestic water from Pipe. Its rate is 90%. It also shows that 5% people of random using water for their domestic activities from well water. Further, 5% get water from filtered water for their domestic activities. Main tap water purification system is situated in Anuradhapura. Also 30% of people using pipe water for their drinking activities and 10% people drink bottled water. 50% people stated that they use purified water as it provides the good taste. However, it is not an appropriate indicator to measure the quality of drinking water. Also 30% people like its appearance. As well as 15% of villagers said that they concern about water quality of the purified water. Most of villagers are not concerned about the quality of water. 5% of people hadn't any idea about purified water. Because they have not much aware about the adverse health impact created by drinking low quality water. Therefore, sometimes they use tap water for drinking. 65% of the respondents drink purified water. They buy purified water from the RO water purification plants located nearby. Also 20% of people using own filter at home for their drink and 15% of people drink boiled water. Researcher found one of best ancient water filtering systems. This is very valuable, healthful, provide save water, ecofriendly system which does not use chemicals, use quartz, pot (clay). However, yet some people drink water without practicing any water treatment method like boiling, filtration and cooling.

Conclusion & Recommendations

According to this survey researcher realized that without water treatment method anyone cannot drink tap water in Mihintale area. According to the Water Supply and Drainage Board, tap water is safe to drink. Sometimes they collect tube well

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water in the dry season. Tube well water is not safe to drink.

Some people drink water without any treatment like boiling, filtration and cooling. In the ancient time, there are lots of purification systems used Sri Lankan people to improve water quality. Rural communities used to fix a Palmyra front to the trunk of the coconut tree and collect rain water to obtain drinking water. Then Keep informed about water policy debates at local, regional and state levels. Through this can improve water quality and serve the human health by providing details about how to get clean water.

Key words: water treatment, filtration, RO plants

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