Literature Review: Testing the Quality of Refillable Drinking Water in Community Environments

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Info article	ABSTRACT
	Water is an inseparable part of all humans. This is because living things cannot live if there is no water, so water is really needed to maintain the continuity of living things. Therefore, this researcher aims to determine the quality of refillable drinking water, whether the product produced meets predetermined quality standards or not. Safe drinking water must meet established standards starting from physical, chemical, microbiological and radioactive aspects in accordance with the Republic of Indonesia Minister of Health Regulation Number 492/MENKES/PER/IV/2010. The results of this research show that 37.5% of DAMIU in Teluk Ambon District, North Balikpapan District meet the effective criteria, namely 66.67% (20) from 30 depots and those that fall within the ineffective criteria are 33.33%. (10) from 30 depots. This indicates that ground water for sanitation and water at the sampling location are generally polluted by coliform bacteria.

INTRODUCTION

Water is one of the main elements on Earth which is an inseparable part for all humans. Living things cannot live if there is no water, so water is needed to maintain the survival of living things. Water in the human body really functions to replenish fluids in the body by drinking water.

The Refill Drinking Water Depot Business (DAMIU) has become one of the small and medium scale businesses that contributes to the supply of drinking water at affordable prices. The existence of a refillable drinking water depot, seen from an economic aspect, can provide learning and increase people's creativity in meeting their basic needs. By using drinking water products in tube form, apart from being easy and practical, the price is also economical and affordable. (Maulina in Hasriani 2013).

Even though it is cheaper, not all refill drinking water depots guarantee the safety of their products, this occurs because of weak supervision from the relevant agencies. Insufficient supervision of refill drinking water depots results in the production process not being properly supervised. This means that the quality of the refillable drinking water produced does not meet the established quality standards. Safe drinking water must meet established standards starting from physical, chemical, microbiological and radioactive aspects in accordance with the Republic of Indonesia Minister of Health Regulation Number 492/MENKES/PER/IV/2010.

Consumption of refillable drinking water in the city of Bekasi is increasing day by day, in line with the dynamics of people's need for drinking water. Drinking water that is healthy and safe for consumption must meet requirements which include physical, chemical and bacteriological requirements. Physical requirements for drinking water quality include color, taste, turbidity and smell (Irno Sampulawa, 2016).

According to the regulation of the Minister of Health of the Republic of Indonesia number 43 of 2014, Drinking Water Depot, hereinafter abbreviated as DAM, is a business that processes raw water into drinking water in bulk form and sells it directly to consumers. Choosing a refill drinking water depot as an alternative to drinking water is a risk that can endanger health if the quality of the refill drinking water depot is still in doubt, especially if consumers do not pay attention to its safety and hygiene. One of the causes of bacterial contamination in drinking water can be caused by contamination of equipment and maintenance of processing equipment. Considering these problems, it is necessary to test the quality of refilled drinking water by reviewing the behavior and maintenance of the equipment. Therefore, this concept can contribute information on the quality of refillable drinking water consumed by the public. (Albina Bare Teran, 2015).

According to the results of Basic Health Research (Riskesdas) in 2013, the incidence and prevalence of diarrhea for all age groups in Indonesia was 3.5 percent and 7.0 percent. The five provinces with the highest incidence and prevalence of diarrhea are Papua, South Sulawesi, Aceh, West Sulawesi and Central Sulawesi. The incidence of diarrhea in the toddler age group in Indonesia is 10.2 percent. The five provinces with the highest incidence of diarrhea are (10.2%),

Papua (9.6%), DKI Jakarta (8.9%), South Sulawesi (8.1%), and Banten (8.0%). The incidence of diarrhea and prevalence of diarrhea in West Java Province in 2013 was 2.5% and 4.9%.

Based on the background above, Penlusi is interested in carrying out the title "Analysis of the Quality of Refillable Drinking Water in the Community Environment".

M ETHODOLOGY

Types of research

This research uses a *literature review method* which collects and analyzes various article sources that are relevant to the problems that occur. The reference sources used were obtained through the Google Scholar journal provider database, Sinta and Mendeley. Based on search results that match keywords, 60 articles can be accessed in full.

Time and Place of Research

The time of the research was carried out in November 2021

Research procedure

The reference sources used were obtained through the Google Scholar journal provider database, Sinta and Mendeley which was carried out during November 2021 with the Refill Drinking Water Quality Test. Based on search results that match keywords, 60 articles can be accessed in full. The next step is to carry out a feasibility analysis of the articles so that 30 articles are selected which are then narrowed down to 10 articles to be included in the discussion.

Data analysis technique

The data analysis technique uses article feasibility analysis techniques so that 30 articles are selected which are then narrowed down to 10 articles to be included in the discussion.

RESULTS AND DISCUSSION

From the results of the literature review, it was found that the Refill Drinking Water Quality Test, which was contaminated, caused people to experience diarrhea. In research by Sri Purwanti et al (2016) entitled "Effectiveness of the Treatment Process at Drinking Water Depots in North Balikpapan District, Balikpapan City". Based on the results of the research conducted, it can be concluded that the Drinking Water Depots in North Balikpapan District that meet the effective criteria are 66.67% (20) of the 30 depots and those that fall within the ineffective criteria are 33.33% (10) of the 30 depots. From the results of this research, on average it meets the effective criteria, and around 10% still contains ecoli bacteria.

Fitri Mairizki (2017) In the title "Analysis of the Quality of Refillable Drinking Water Around the Riau Islamic University Campus". 492/Menkes/Per/IV/2010. All AMIU samples do not exceed the maximum permitted limits for physical and chemical parameters with temperatures ranging between 23.2oC-26.8oC, dissolved solids (TDS) 10-270 mg/L, pH 6.6-7.8, Cd 0.000-

0.003 mg/L, Mn 0.000-0.106 mg/L, Fe 0.000-0.054 mg/L, Cu 0.001-0.094 mg/L, Cr < 0.05 mg/L, hardness 0.318-39.179 mg/L, SO4 2- < 25 mg/L, NO3 - < 4.4 mg/L and NH4 + < 0.05 mg/L. All samples were contaminated with bacteria

Coliform and does not meet the requirements because the drinking water quality has a normal temperature value at room temperature of 25 $^{\circ}$C. According to Minister of Industry and Trade Decree number 651 of 2004, the location of the Drinking Water Depot must be free from pollution originating from dust around the Depot, areas where sewage/garbage is disposed of, places where used goods are accumulated, places where insects, small animals, rodents and other things hide/breed. -others, unfavorable places, water drainage systems and other places that are thought to cause pollution.

Based on the guidebook for Implementing Hygiene Sanitation at Drinking Water Depots, it is written that the spatial layout has at least 4 rooms, namely a processing room, a storage room, a distribution room and a waiting room. From observations made, most depots do not have a waiting room for their customers. There is even one depot that does not have a processing and storage room, the processing process and raw material reservoirs are also placed outside. These conditions will certainly allow for contamination both from dust and insects.

Production water inspections must also be carried out by depot entrepreneurs to ensure the quality of raw water as required in Minister of Health Regulation No. 736 of 2010 concerning Procedures for Supervising Drinking Water Quality in clause B concerning Determining the Frequency of Drinking Water Sampling in Internal Control, namely: 1). Microbiology and physics once a month; 2). Chemistry once every six months. Based on the Attachment to the Minister of Industry and Trade Regulation No. 651 of 2004 concerning Technical Requirements for Drinking Water Depots in Part 1 Concerning the design and construction of depots, it is explained that filling places must be designed only for the purpose of filling finished products and must use doors that can close tightly.

CONCLUSION

Water is one of the main elements on Earth which is an inseparable part for all humans. Living things cannot live if there is no water, so water is needed to maintain the survival of living things. Water in the human body really functions to replenish fluids in the body by drinking water. The Refill Drinking Water Depot business has become one of the small and medium scale businesses that contributes to the supply of drinking water at affordable prices. Insufficient supervision of refill drinking water depots results in the production process not being properly supervised.

This means that the quality of the refillable drinking water produced does not meet the established quality standards. Safe drinking water must meet established standards starting from physical, chemical, microbiological and radioactive aspects in accordance with the Republic of Indonesia Minister of Health Regulation Number 492/MENKES/PER/IV/2010.

Consumption of refillable drinking water in the city of Bekasi is increasing day by day, in line with the dynamics of people's need for drinking water. Drinking water that is healthy and safe for consumption must meet requirements which include physical, chemical and

bacteriological. One of the causes of bacterial contamination in drinking water can be caused by contamination of equipment and maintenance of processing equipment. Considering these problems, it is necessary to test the quality of refilled drinking water by reviewing the behavior and maintenance of the equipment. Therefore, this concept can contribute information on the quality of refillable drinking water consumed by the public. According to the results of Basic Health Research in 2013, the incidence and prevalence of diarrhea for all age groups in Indonesia was 3.5 percent and 7.0 percent.

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