E-ISSN : 2407 – 3911
P-ISSN : 2686 - 0333

COMMUNITY SERVICE: IMPLEMENTATION OF WATER FILTER FOR THE COMMUNITY IN BOJONGMALAKA VILLAGE, BALEENDAH DISTRICT, BANDUNG REGENCY

Sri Lestari[1], Dani Hamdani[2], Martoni[3]
Prodi Sistem Informasi[1,2], Prodi Teknik Mesin[3]
Universitas Widyatama
Kota Bandung
sri.lestari@widyatama.ac.id[1], dani.hamdani@widyatama.ac.id[2], martoni@widyatama.ac.id[3]

Abstrak

Terdata di daerah Bojongmalaka masyarakatnya mengalami kesulitan air bersih. Kondisi air disana keruh dan berwarna kuning sehingga kurang layak digunakan. Atas dasar permasalahan itulah maka pelaksana hibah pengabdian kepada masyarakat dari Universitas Widyatama berkolaborasi antara program studi Teknik mesin dengan program Studi Sistem Informasi mencoba melakukan pengabdian kepada masyarakat untuk menyelesaikan masalah air bersih ini dan hasilnya berupa saringan air yang diterapkan pada masyarakat desa Bojongmalaka dengan harapan dapat membantu mengatasi masalah air bersih di desa Bojongmalaka. Kegiatan ini melibatkan dosen dan mahasiswa di Universitas Widyatama. Tahapan Penerapan Pengabdian dilakukan dengan Identifikasi masalah, Pembuatan alat, Sosialisasi, Penerapan, Pendampingan dan Evaluasi, Evaluasi pelaksanaan program, Keberlanjutan Program. Berdasarkan kuesioner yang disebarkan kepada masyarakat, terdata 51 % masyarakat menggunakan sumur gali, 63 % mengolah air agar lenih aman untuk diminum, dan 88,9 % airnya jernih, tidak berbau. Kepala desa Bojongmalaka Dedi Dermawan beserta warga sangat antusias dengan kegiatan ini dapat membantu permasalahan yang dihadapi warganya. Kepala desa Bojongmalaka mengucapkan terimakasih kepada Universitas Widyatama dan Ditjen Dikti Ristek atas pendanaannya tahun 2021. Dedi berharap semoga kegiatan serupa dapat dilanjutkan lagi untuk masalah-masalah lainnya yang ada di Desa Bojongmalaka.

Kata kunci: air, saringan, abdimas, air bersih

Abstract

In the Bojongmalaka area, the people have difficulty with clean water. The water condition there is murky and yellow so it is not suitable for use. On the basis of that problem, the executor of community service grant from Widyatama University collaborated between Mechanical Engineering study program and Information Systems Study program to try to serve the community to solve this clean water problem and the result is a water filter applied to Bojongmalaka village community with the hope of helping solve the problem of clean water in the village of Bojongmalaka. This activity involves lecturers and students at Widyatama University. Stages of Implementation of Devotion is done with Problem Identification, Tool Making, Socialization, Implementation, Assistance and Evaluation, Evaluation of program implementation, Program Sustainability. Based on the questionnaire distributed to the community, 51 % of the community used digging wells, 63 % treated the water so that it was safe to drink, and 88.9 % of the water was clear, odorless. Bojongmalaka village head Dedi Dermawan and residents are very enthusiastic about this activity can help the problems faced by residents. The head of Bojongmalaka village thanked Widyatama University and the Director-General of Dikti Ristek for their funding in 2021. Dedi hoped that similar activities could be continued for other problems in Bojongmalaka village..

Keywords:water, filter, community srvice, clean water

I. INTRODUCTION

One of the priority agendas of NAWACITA in the 2015-2019 development policy is to improve the quality of human life, namely the Indonesian people by using promotive and preventive methods (Kemenkes RI, 2015). Improving the quality of human life requires the fulfillment of basic human needs, one of which is the need for clean water. Water is a very important element in human life, so various

efforts are made to obtain clean water. However, the water obtained still does not have good water quality (raw water) as required by health standards, as stated in the Regulation of the Minister of Health of the Republic of Indonesia No. 32 of 2017, concerning Environmental Health Quality Standards and Water Health Requirements for Sanitary Hygiene, Swimming Pools, Solus Per Aqua, and Public Baths.

Water is the most important part of human life to meet the needs of drinking, eating, bathing, washing, and so on. Fulfilling the need for water encourages people to look for sources of water. Water sources are divided into sources of space water, surface water, and deep groundwater. One of the common water sources in the community is dug wells. They dug wells are made with an average depth of 7 m. made by digging the soil and given a cement wall to hold the side soil (Djasio Sanopie, 2011).

The condition of well water in Bandung Regency, especially in the area of Bojong Malaka Village, Baleendah District, has been polluted. The most prominent problem with well water in Bojong Malaka Village, Baleendah District, is a foul odor and is yellow in color, and has a metallic smell. Generally, foul-smelling water in urban areas occurs because the soil is contaminated with organic waste. Naturally, the yellow color or metallic smell is due to the water containing a lot of iron (Fe), Manganese (Mn), aluminum (Al), or other metals that are harmful to health.

Through the MBKM program, research is directed to overcome the problems that exist in the community in the village of Bojong Malaka, Baleendah District, Bandung Regency with a pilot at the Putra Bahari Vocational School who enthusiastically supports this activity which will then be developed for the surrounding community. One of the results of the research is to make a water purifier as a solution to deal with dirty water in the community. The results of this study were then applied to the community as a form of implementation of community service based on the results of PTS research in the form of MBKM activities. In carrying out this community service activity, it involves lecturers and students across study programs and across faculties at Widyatama University.

II. LITERATURE REVIEW

Water is a very important requirement for human survival, without water there will be no life on earth. What is meant by clean water is water that is used for daily needs and will become drinking water after it is cooked first. As a limitation, clean water is water that meets the requirements for a drinking water supply system. The requirements referred to are requirements in terms of water quality which includes physical, chemical, biological, and radiological qualities so that when consumed it does not cause side effects.

Water is a liquid that has no taste, color, or odor, consisting of hydrogen and oxygen with the formula H2O. Water is all water found on, above, or below the ground surface, including in this sense surface water, groundwater, rainwater, and seawater on land (Law No. 7 article 1 paragraph 2 of 2004).

According to Sutrisno (2010: 14-17), water sources can be grouped into four, namely:

a. Seawater

Seawater is salty because it contains NaCl salt. The salt content of NaCl in seawater is 3%. With this condition, seawater does not meet the requirements for drinking water.

b. Rainwater

Rainwater is a sublimation of clouds/pure water vapor which when it falls and through the air will dissolve objects in the air, gases (O2, CO3, N2, and others), micro-organisms, and dust. Rainwater is formed from droplets of the evaporation process from water, vegetation, animals, and from the human body on the earth's surface that floats as clouds, consisting of moist air that condenses so that it experiences a level of saturation and falls to the earth's surface as rainwater. Rainwater is water that has an aggressive nature, especially against distribution pipes and reservoir tanks, so that it can accelerate corrosion (rust). In addition, even this water is soft so it will be wasteful to use soap.

c. Surface water

Surface water is water that flows over the earth's surface. This water comes from rainwater that falls to the earth's surface, then flows from high areas to lower areas through gaps according to the topography of the area it passes through. In general, surface water is easily contaminated by contaminants, so this water contains a lot of bacteria, chemicals, and other

substances that are destructive. This water can be in the form of ditch water, river water, lake water, dam water, reservoir water, swamp water, and seawater.

d. Groundwater

Sutrisno (2010: 17-18) states that groundwater is divided into two types, namely: shallow groundwater and deep groundwater.

1) Shallow groundwater

Shallow groundwater is groundwater that is above the first impermeable layer, usually located not too deep below the soil surface.

2) Deep groundwater

Deep groundwater is found after the first dense layer of water, the quality of deep groundwater is generally better than shallow water because the filtration is more perfect and freer of bacteria.

Environmental Health Quality Standards for Water media for Sanitary Hygiene Purposes include physical, biological, and chemical parameters which can be in the form of mandatory parameters and additional parameters.

Mandatory parameters are parameters that must be checked periodically in accordance with the provisions of laws and regulations, while additional parameters are only required to be checked if geohydrological conditions indicate potential contamination associated with additional parameters. The water for Sanitary Hygiene Needs is used for maintaining personal hygiene such as bathing and brushing teeth, as well as for washing food, eating utensils, and clothes. In addition, Water for Sanitary Hygiene Purposes can be used as raw water for drinking water (Permenkes No. 32 of 2017).

III. IMPLEMENTATION OF COMMUNITY SERVICE

The strategies implemented in the implementation of Community Service activities, Application of Water Filters for the community in Bojongmalaka Village, Baleendah District, Bandung Regency using Funding Assistance for the Independent Learning Policy Research Program of the Independent Campus and Community Service Based on Research Results and PTS Prototypes of the Directorate General of Higher Education and Technology for the 2021 Fiscal Year are:

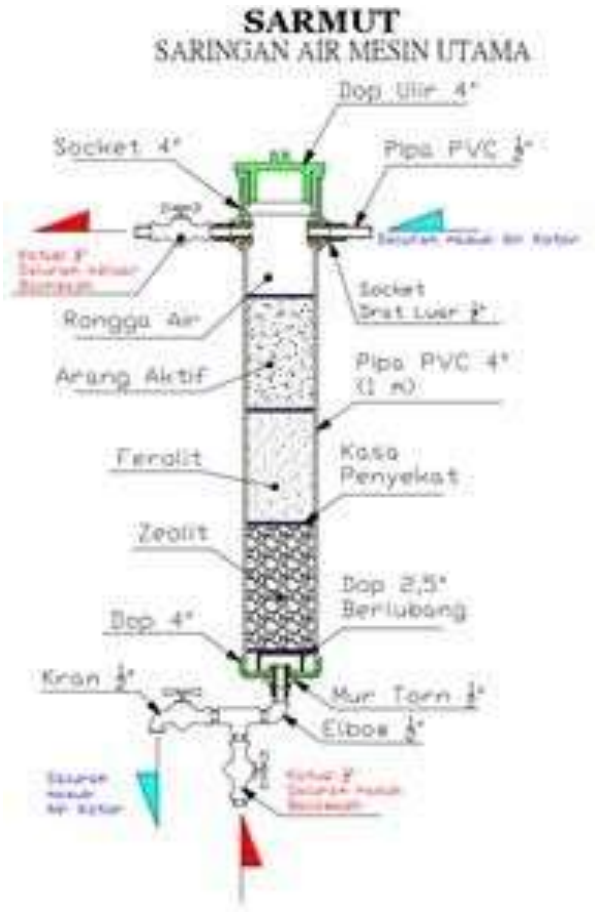
1. Community service activities are associated with the results of research conducted by lecturers and students as a solution for the community.

2. Community service activities involve lecturers and students from across study programs and across faculties at Widyatama University as MBKM implementation activities in the community.

3. Community service activities, helping with dirty water problems by implementing and socializing water filters as the implementation of integrated MBKM activities from research results applied in the community which will then be developed for the surrounding community in the village of Bojongmalaka.

4. Community service involves multi-disciplinary lecturers and students so that these studies have an impact on university solutions related to problems faced by the community.

The following is a drawing of the water filter construction:



The functions and benefits obtained from the results of Research and Community Service are to give students the right to carry out learning activities outside the campus according to one of the pillars of the Merdeka Learning Campus Merdeka (MBKM) in the form of community service activities based on the results of private university research and these activities will be recognized in the course with a certain credit weight; Widyatama University also plays a role in the community at the local government level by encouraging students and lecturers to produce useful prototypes of research and service results in the form of water filters that are directly beneficial for the people of Bojongmalaka village who are experiencing difficulties with clean water. This is in accordance with the MBKM concept which is regulated in the National Higher Education Standard, namely the Minister of Education and Culture Regulation Number 3 of 2020, as well as in the Higher Education Main Performance Indicators (IKU) which are regulated through the Decree of the Minister of Education and Culture Number 3/M/2021.

Communities in Bojongmalaka Village, Baleendah District, Bandung Regency have problems related to the water they use daily. The condition of the well water is already polluted. The most prominent problem with well water in Bojong Malaka Village, Baleendah District, is a foul odor and is yellow in color, and has a metallic smell. Generally, foul-smelling water occurs because the soil is contaminated with organic waste. Naturally, the yellow color or metallic smell is due to the water containing a lot of iron (Fe), Manganese (Mn), aluminum (Al), or other metals that are harmful to health.

Through the implementation of funding assistance programs for the Independent Learning Campus policy research program and community service based on research results and PTS Ditjen Dikti Research and Technology 2021 prototypes, Widyatama University through the collaboration of lecturers and students across study programs contributes more significantly through the innovation of one of the best university studies, namely Water Filter Research. to be applied to Bojongmalaka Village in the hope of solving the dirty water problem in the village. Through this program, in addition to being given donations in the form of 7 (seven) sets of water filters, the community is also given education on how to make these filters. The aim is to help empower the community so that they can make water filters independently.

The people of Bojongmalaka Village are very grateful for the assistance from the Directorate General of Higher Education for Research and Technology for the 2021 funding and Widyatama University so that now the community can use clean water for public purposes. Water filter devices have been installed in 7 (seven) Rukun Warga in strategic locations such as village offices and mosques. Now people can perform ablution using clean water. In addition, there are also people who try to make these filters themselves and install them according to the procedures explained during the socialization. 51% of the people use dug wells, 63% treat the water to make it safer to drink, and 88.9% of the water is clear, odorless.

The follow-up that will be carried out is that Community Service activities will be continued in the form of further assistance using cluster grant funds from Widyatama University, considering the enthusiasm of the community to have clean water in their homes.

IV. CONCLUSIONS AND SUGGESTIONS

The conclusions obtained from this activity are:

1) Community service has been carried out in Bojongmalaka Village, Baleendah District, Bandung Regency as an integrated implementation of MBKM activities from the results of research applied to the community in the form of applying water filters to overcome the problem of dirty water.
2) The activities carried out help empower the community to be able to make water filter equipment independently.
3) This activity has given students the right to carry out learning activities outside the campus according to one of the pillars of the Merdeka Learning Merdeka Campus (MBKM) in the form of community service activities that will be recognized in courses with a certain credit weight;

Hopefully, the program for implementing the funding assistance program for the Independent Learning Campus Policy Research Program and community service based on research results and prototype PTS Ditjen Dikti Research and Technology

can be continued in the following years because it is very useful.

REFERENCE

Depkes, RI ; 2017, Peraturan Menteri Kesehatan Nomor 32 Tahun 2017 Tentang Standar Baku Mutu Kesehatan Lingkungan dan Persyaratan Kesehatan Air untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua, Dan Pemandian Umum. Depkes RI, Jakarta.

Djasio Sanopie, Sumini, Tri prasetyo, W, 2011. Penyediaan Air Bersih, Jakarta.

Menteri Kesehatan Republik Indonesia. 2015. Rencana Strategis Kementerian Kesehatan Tahun 2015 – 2019. Jakarta: Kementerian Kesehatan Republik Indonesia.

Sutrisno. 2010. Tenologi Penyediaan Air Bersih. Jakarta: Rineka Cipta.

Undang-Undang Nomor 7 tahun 2004 tentang Sumberdaya Air.