




Research Article

## Training on Household Dirty Water Drainage Management

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**Abstract.** Farmers in Samangki Village regarding sanitation is still low, which indicates the need for guidance and guidance efforts to improve the quality of the environment and housing in this village. This PKM was carried out in the rainy land farmers' settlement in Samangki Village, with the Samangki Village Head as the PKM partner. The aim of this PKM is to assist Samangki Village farmers in creating healthy household wastewater drainage channels, while also improving the quality of their housing environment and their overall quality of life. This PKM begins by submitting an application for a location permit to the Maros Regency Village Development Service by the Chair of LP2M UNM Makassar. Outreach activities were carried out in NSamangki Village, especially aimed at the target community. The content of the socialization focuses on the importance of constructing healthy household wastewater drains, the tools and materials used in the construction, as well as the construction model that will be applied. The socialization method involves direct visits to PKM locations, lectures, discussions, and question and answer sessions. The results of this PKM include significant achievements, such as: (a) Increasing Farmer Skills through intensive training and mentoring, (b) Reducing the Risk of Disease by implementing healthy sewers, (c) Improving the

Quality of Life for farmer households who take part in this program by a cleaner and healthier environment, as well as (d) a real improvement in the quality of life. Thus, this PKM activity has achieved significant positive results.

**Key Words:** Drainage, Farmers, Sewerage.

## INTRODUCTION

Water is one of the causes of health problems. Health is a very valuable thing for humans. Maintaining health can start by maintaining a healthy environment (Sastrawijaya, Tresna, 2021). Poor water quality will affect the health of residents. There is a need for innovation in making water filters in order to improve the quality of water for daily needs so that it becomes a more useful product or material.

More broadly, it can be stated that poor sanitation facilities also have the potential to pollute rivers. It is known that 68% of rivers in Indonesia are currently heavily polluted, and 70% of these rivers are known to be polluted by household waste (Worldbank, 2017). Poor water quality will affect the health of residents. There is a need for innovation in making water filters in order to improve the quality of water for daily needs so that it becomes a more useful product or material.

Drainage, which comes from the English word drainage, means to drain, drain, throw away or channel water. In the field of civil engineering, drainage can generally be defined as a technical action to reduce excess water, whether originating from rainwater, seepage, or excess irrigation water from an area/land, so that the function of the area or/land is not disturbed (Suripin, 2004). Drainage is a system created to deal with the problem of excess water, both excess water above the ground surface and water below the ground surface. Excess water can be caused by high rain intensity or the result of long rain duration (Wesli, 2008).

Sanitation is an effort to prevent disease focuses activities on environmental health efforts humans (Widyati, 2012). Environmental sanitation is a status the health of an environment that includes housing, sewage disposal, provision of clean water, and so on (Notoadmojo, 2013). Healthy settlements are a place to reside permanently, serve as a place for residence, rest, recreation and as a place of refuge from environmental influences that meet physiological requirements, psychological, free from disease transmission and accidents (Kasjono, 2011)

Direct sources are sources of pollution that originate from certain points along the receiving water body with a clear location (Budiasih, 2010). Pollution location points mainly come from industrial waste disposal pipes that do not process the waste or the disposal of waste processing results at IPALs (Waste Water Treatment Plants) which enter the receiving water body, while indirect sources are sources originating from agricultural activities, animal husbandry, small industry or medium, workshops and domestic in the form of use of consumer goods (Yudo, 2010).

Domestic household waste is liquid and solid waste that comes from the kitchen, bathroom and laundry. Apart from being dangerous for the environment, domestic waste is also dangerous for health, because domestic waste contains many germs and bacteria which can cause various diseases (Nurhidayah, 2023). Domestic waste, both in liquid and solid form, can pollute soil, damage water ecosystems, affect

people's drinking water sources, and cause disease germs and create unpleasant odors. (Phelia, 2019) Domestic waste usually does not require special processing before it is disposed of into the waste water channel (Mansyuri, 2022)

Samangki Village, which is located in Simbang District, Maros Regency, has an area of 43.62 km<sup>2</sup> and a population of 5,176 people with a population density of around 118.66 people/km<sup>2</sup> (BPS Maros, 2021). Most of the residents of Samangki Village, namely around 356 heads of families, earn their living from the agricultural sector. This village is located about 4 km from the sub-district government center (Jenetaesa), 16 km from the district government center, and about 46 km from UNM Makassar.

The level of knowledge of farmers in Samangki Village regarding sanitation is still low, which indicates the need for coaching and mentoring efforts to improve the quality of the environment and housing in this village. By providing guidance on sanitation, especially in the construction of household wastewater drainage channels, it is hoped that there will be improvements in environmental quality and public health. Therefore, this PKM was implemented in the rainy land farmer settlement in Samangki Village, with the Samangki Village Head as the PKM partner

## RESEARCH METHODS

The PKM implementation method consists of several steps, as explained below: 1. The PKM Location Licensing and Preparation Stage begins with submitting an application for a location permit to the Maros Regency Village Development Service by the Chair of LP2M UNM Makassar. Site preparation involves the readiness of partners, providing training places, tools, materials needed, as well as practice areas for the construction of sewerage channels that are safe and in accordance with environmental health principles. Direct visits to PKM locations, discussions, and question and answer sessions are used as methods in this stage. 2. Socialization Stage Socialization activities were carried out in Samangki Village, especially aimed at the target community. The content of the socialization focuses on the importance of constructing healthy household wastewater drains, the tools and materials used in the construction, as well as the construction model that will be implemented. The socialization method involves direct visits to PKM locations, lectures, discussions, and question and answer sessions. 3. Extension Stage The PKM implementing team provides education to the target community. The education material includes an understanding of the importance of building healthy household sewerage systems, their objectives and benefits, the materials needed, the tools used, and healthy construction models. Extension methods involve lectures, question and answer sessions, and discussions. 4. Introducing the Materials and Tools Used. The PKM implementing team introduced the materials and tools used in making healthy household wastewater drains. They provide an explanation of each ingredient, material, tool and equipment that will be used, while also providing opportunities for questions and answers and discussion. 5. Carrying out Training and Mentoring At this stage, the PKM implementing team provides training and assists the target community in the practice of constructing household sewage channels in accordance with environmental health principles. Training activities include stages such as

determining the location, size, earth excavation, brick installation, plastering, and project completion. Demonstrations, discussions and question and answer sessions are used as methods in this stage.6. Program Monitoring and Evaluation Phase Monitoring is carried out during the empowerment of the target community to observe the extent of their involvement. Evaluations are carried out after empowerment is completed to assess the community's understanding of healthy household sewerage construction and the quality of the construction that has been built by them. The evaluation also aims to identify potential weaknesses or deficiencies in the construction that may have an impact on the environment. It is hoped that all these efforts will have a positive impact on the community and their environment in Samangki Village.

## RESULTS AND DISCUSSION

The Community Partnership Program (PKM) aims to increase farmers' ability to design and build healthy sewerage systems in their homes. Implementation of this PKM has resulted in several significant achievements: Advancement in Farmer Skills: Through intensive training and mentoring, farmers in our region have experienced an increase in their understanding of basic sanitation principles and simple techniques in constructing sewerage channels. They now have the ability to plan and build better sewage systems. Reduction of Disease Risk: Through the implementation of clean and healthy sewers, the risk of spreading disease caused by dirty water can be significantly reduced. Improved Quality of Life: Farming households that have participated in this program have experienced a visible improvement in their quality of life. They feel safer and more comfortable because the environment where they live is clean and healthy. This also has a positive impact on their productivity in the fields. Improved Quality of Life: Farming households that have participated in this program have experienced a marked improvement in their quality of life. They feel safer and more comfortable because their environment is clean and healthy. This also has a positive impact on their productivity in the fields. The following is a photo of the results of community service activities that have been carried out:

Photo Documentation of Activities





## Household Dirty Water Sewerage



## Photo of Mentoring Activities



Increasing farmers' ability to build healthy sewerage channels is an important step in improving the welfare of rural communities. The following are several points that can be used as material for discussion in the context of this PKM: The Importance

of Education: This PKM highlights the importance of education and training in understanding basic sanitation. With a strong understanding, farmers can understand the health impacts caused by dirty water and take steps to overcome this problem. Role of Government and NGOs: Collaboration between local governments, non-governmental organizations (NGOs), and universities is very important in implementing this kind of program. Support from various parties can ensure the continuity of the program and its spread to wider areas. Socialization and Behavior Change: Apart from technical skills, it is also important to carry out effective outreach to change farmer behavior regarding sanitation. This includes hygiene practices that should be adopted in daily life. Sustainability: To ensure this program is sustainable, there needs to be regular maintenance and monitoring efforts for the drains that have been built. Repeated training and mentoring will help ensure that farmers continue to apply the skills they have learned. This PKM is a concrete example of how education, training and community awareness can play a role in improving sanitation and health in rural areas. Through this action, it is hoped that rural communities will live healthier and fitter lives and increase their productivity in various aspects of life.

## CONCLUSION

In implementing the Community Partnership Program (PKM) which aims to improve farmers' skills in making healthy sewage channels, there have been significant achievements. Through intensive training and mentoring for farmers in the region, real positive impacts have been achieved. They succeeded in improving their abilities in designing and building healthy sewage channels, while reducing the risk of disease associated with dirty water and improving their quality of life. In this context, education, collaboration, outreach, and maintenance play an important role in the success of this program.

The suggestions that can be taken from the results of implementing this PKM are as follows: Program Expansion: It is necessary to expand this program to other rural areas that require improved sanitation. This may be achieved through additional support from various parties, such as local governments, NGOs, or donors. Strengthening Education: The next step is to continue providing education and training to farmers and the community regarding the importance of sanitation and cleanliness. This could include involvement of local schools and increased outreach. Periodic Monitoring and Evaluation: Regular monitoring and evaluation of drains that have been constructed is an important step to ensure their continuity and quality. The accompanying team must remain ready to provide technical assistance and maintenance if necessary

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