

The Role of Environmental Sanitation in Reducing Dengue Hemorrhagic Fever Cases in Surakarta: A Perspective of Environmental Engineering through a Radio Talk Show

Yonathan Suryo Pambudi^{1*}, Cicik Sudaryantiningih², Elvis Umbu Lolo³
Universitas Kristen Teknologi Solo

Corresponding Author: Yonathan Suryo Pambudi pambudiysp@gmail.com

ARTICLE INFO

Keywords: Environmental Sanitation, DHF, Community Education, Disease Prevention, Talk Show

Received : 22, May

Revised : 24, June

Accepted: 26, July

©2025 Pambudi, Sudaryantiningih, Lolo: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

The talk show discussed the impact of poorly managed sanitation such as clogged drainage systems and improperly covered water storage that can create breeding grounds for *Aedes aegypti* mosquitoes, the vector responsible for DHF. In addition, practical solutions that can be implemented by the community to improve their environmental sanitation were also discussed, including maintaining clean water storage containers and conducting community-driven efforts to clean drainage systems and surrounding environments. The results of this activity show that the majority of listeners have become more aware of the importance of environmental sanitation in the prevention of DHF. However, challenges in consistently applying healthy and clean habits still persist. Therefore, continuous educational programs are needed to raise public awareness and improve sanitation conditions in Surakarta.

INTRODUCTION

Inadequate environmental sanitation can significantly contribute to the increase of communicable diseases, including Dengue Hemorrhagic Fever (DHF). In Surakarta, suboptimal sanitation conditions are one of the factors influencing the spread of DHF. These factors include inefficient management of clean water, inadequate drainage systems, and subpar waste management, all of which can create environments conducive to the breeding of *Aedes aegypti* mosquitoes, the primary vector responsible for DHF. In this context, good sanitation involves more than just water and waste management; it also encompasses efforts to educate the public in order to create a cleaner and healthier environment.

Poorly managed sanitation not only impacts physical health but also exacerbates social and economic inequalities, particularly in more vulnerable areas. Several studies have shown that improving sanitation can significantly reduce the incidence of diseases, including DHF, and enhance the overall quality of life (Paes, 2024). To support the achievement of the Sustainable Development Goals (SDGs), particularly SDG 6, which focuses on universal access to clean water and sanitation, effective sanitation interventions are essential to reduce the spread of environmentally transmitted diseases (Mwaura, 2024).

One effective way to raise public awareness about the importance of sanitation is through mass media, as demonstrated by the talk show organized by Universitas Kristen Teknologi Solo in collaboration with Radio Immanuel. The event aimed to provide the public with a deeper understanding of the relationship between inadequate environmental sanitation and the increased risk of DHF transmission. Research has shown that education through media is effective in raising public awareness and promoting behaviors that support environmental cleanliness (Ali et al., 2024).

Furthermore, studies indicate that improved sanitation plays a key role in preventing other communicable diseases and supports long-term environmental sustainability (Opere, 2023), and emphasizes the need for a holistic approach to sanitation management involving multiple stakeholders, including governments and communities (Lucena & Medeiros, 2024).

The role of proper sanitation is also crucial in preventing diseases caused by environmental factors, such as diarrhea, which have a significant impact on public health and quality of life, particularly in areas with limited access to sanitation (Mwaura, 2024). Additionally, studies highlight the importance of multisectoral collaboration to create sustainable sanitation policies that focus not only on technical aspects but also on the social and economic dimensions, which can accelerate the achievement of SDG goals related to sanitation and public health (Chetiya, 2024).

IMPLEMENTATION AND METHODS

This talk show was held on July 14, 2025, from 10:00 to 11:00 WIB at Radio Immanuel, which has a broad broadcasting reach in the Surakarta area. This activity is part of the community service program organized by the Environmental Engineering Study Program at Universitas Kristen Teknologi Solo. The talk show aimed to raise public awareness about the relationship between suboptimal environmental sanitation and the increasing incidence of Dengue Hemorrhagic Fever (DHF), as well as the importance of prevention efforts through proper environmental cleanliness behaviors.

The event featured three speakers from the Environmental Engineering Study Program at Universitas Kristen Teknologi Solo, who have expertise in public health and environmental engineering: Yonathan Suryo Pambudi, S.T., M.Si., Elvis Umbu Lolo, M.T., and Dra. Cicik Sudaryantingsih, M.Si. The three speakers provided comprehensive insights into the impact of environmental sanitation on public health, particularly related to the spread of DHF caused by unhealthy environmental conditions.

The method used in this event was an educational approach through media, utilizing Radio Immanuel's platform to convey messages about DHF prevention to the public. This approach is expected to reach a wide audience, including those in high-risk areas for DHF.

1. Outreach

The speakers provided explanations on the importance of environmental sanitation to prevent the breeding of *Aedes aegypti* mosquitoes, which can cause DHF. The topics discussed included the management of water drainage, waste management, and simple steps that the public can take to maintain cleanliness in their surrounding environment.

2. Audience Interaction

During the event, the audience was given the opportunity to ask questions related to the topics discussed. This Q&A session allowed the public to gain deeper insight into how they can actively contribute to DHF prevention efforts, as well as to obtain practical solutions regarding sanitation issues in their environment.

3. Digital Information Dissemination

In addition to the radio broadcast, information from this talk show was also disseminated through Radio Immanuel's and Universitas Kristen Teknologi Solo's social media platforms. This enabled educational messages to reach a larger audience, both those who listened directly and those accessing the information online.

The evaluation of this activity was conducted by observing the active participation of the audience during the event, such as their level of engagement in the Q&A sessions and discussions. This served as an important indicator in measuring the success of the event in attracting the public's attention and raising awareness about the importance of environmental sanitation and DHF prevention.

RESULTS AND DISCUSSION

The results of this talk show event indicate an increase in public awareness regarding the relationship between inadequate environmental sanitation and the rising incidence of Dengue Hemorrhagic Fever (DHF) in Surakarta. Based on feedback from listeners during and after the event, the majority of the audience acknowledged that they had not fully understood the importance of sanitation in preventing the spread of this disease. Many realized that poor sanitation conditions, such as clogged drainage systems and uncovered water storage, create breeding grounds for *Aedes aegypti* mosquitoes, which are the primary vector responsible for DHF.

Audience Interaction

During the talk show, many audience members actively participated in the Q&A session. Most of the questions were related to practical steps that the community could take to maintain environmental cleanliness. For instance, the audience asked for further clarification on how to minimize places where water can accumulate and be used by mosquitoes to breed. The speakers provided simple yet effective solutions, such as routinely draining water containers, securely covering water storage, and conducting community-driven efforts to clean the environment regularly.

Increased Public Awareness

Overall, the event demonstrated that public awareness of the importance of environmental cleanliness in preventing Dengue Hemorrhagic Fever (DHF) has increased. Some listeners conveyed through phone calls that they would be more proactive in maintaining a clean environment and educating those around them about DHF prevention measures. These results indicate that mass media approaches, such as radio, are effective in enhancing public understanding of good sanitation practices and their connection to health.

Challenges in Implementing Clean Habits

However, discussions with the public also revealed several challenges still faced in consistently applying healthy and clean habits. Many residents, despite understanding the importance of maintaining cleanliness, still struggle to implement these habits consistently, particularly in areas with limited sanitation facilities. Some respondents mentioned that they still faced difficulties in managing waste properly due to the lack of adequate waste bins in their neighborhoods. Additionally, although efforts to clean the environment are ongoing, some areas still lack effective waste disposal facilities.

The Importance of Government and Community Roles

While public participation in maintaining environmental sanitation is essential, local governments also play a key role in providing adequate waste management facilities and improving sanitation infrastructure. Community service programs like this talk show must be followed by concrete actions from the government and relevant sectors, such as the construction of proper drainage systems and providing waste bins in every home or public facility. Collaboration between the community, government, and educational institutions such as Universitas Kristen Teknologi Solo needs to be continuously strengthened to create a cleaner and healthier environment.

The Role of Media as an Effective Educational Tool

One important finding from this event is the role of media as an extremely effective educational tool. Mass media, particularly radio, has proven to be a medium that can reach a wider audience and have a direct impact on increasing public awareness of sanitation and DHF prevention. The success of this talk show demonstrates that local media can serve as an effective bridge between expert knowledge and the broader community in educating them about environmental health issues.

The documentation of this talk show activity can be seen in the following Figure 1



Figure 1. Documentation of the Talk Show activity at Radio Immanuel Surakarta

CONCLUSIONS AND RECOMMENDATIONS

The talk show organized by the Environmental Engineering Study Program of Universitas Kristen Teknologi Solo in collaboration with Radio Immanuel successfully provided a better understanding to the people of Surakarta about the importance of environmental sanitation in preventing Dengue Hemorrhagic Fever (DHF). Based on the results of the event, many listeners realized that they had not fully understood how inadequate environmental sanitation could affect the spread of DHF and increase the risk of *Aedes aegypti* mosquito breeding.

Through informative discussions and outreach from the speakers, many people now understand the practical steps they can apply to maintain a cleaner environment, such as reducing stagnant water and disposing of waste properly. However, the main challenge remains in consistently applying clean habits, especially in areas with limited sanitation facilities. Moreover, while public awareness has increased, the role of local governments and related institutions remains crucial in providing adequate sanitation infrastructure. This will help support more sustainable and better behavioral changes in maintaining environmental cleanliness.

1. **Improvement of Sanitation Infrastructure**

The local government of Surakarta is recommended to continue improving sanitation facilities, including managing clean water drainage systems, efficient waste management, and providing adequate waste bins throughout the area. The improvement of sanitation facilities is vital to support the better habits of the community in maintaining environmental cleanliness.

2. **Continuous Education**

The educational activities carried out through this talk show should be continued on an ongoing basis, involving more media platforms such as social media, television, and other community events. Mass media has great potential to reach a wider audience and plays an important role in effectively providing information related to sanitation and DHF prevention.

3. **Collaboration Between the Community, Government, and Academia**

Collaboration between the community, government, and educational institutions like Universitas Kristen Teknologi Solo needs to be strengthened. Community service programs involving various parties will be more effective in creating sustainable solutions for sanitation and public health in Surakarta.

4. **Strengthening Environmental Health Policies**

The local government should strengthen policies and programs that support improvements in environmental sanitation. Disease prevention campaigns and vector control programs, such as DHF, must be expanded and more deeply integrated into public policies. This is crucial to encourage wider collective behavioral changes in the community.

5. Increasing Community Participation

The community should be encouraged to become more active in maintaining environmental cleanliness. Initiatives such as community-driven efforts to clean the environment and the formation of environmental care groups can be a positive first step in creating widespread clean habits at the community level.

ACKNOWLEDGMENT

We would like to express our deepest gratitude to the leadership of Radio Immanuel Surakarta for their excellent collaboration in organizing this talk show. Their support in providing the platform for this event has been invaluable in reaching a wide audience and raising public awareness about the importance of environmental sanitation in preventing Dengue Hemorrhagic Fever (DHF).

We also sincerely thank the Environmental Engineering Study Program and the Institute for Research and Community Service (LPPM) of Universitas Kristen Teknologi Solo for providing the opportunity, support, and resources for the implementation of this community service activity. Without their support and encouragement, this event would not have been successful.

We would like to extend our gratitude to all the speakers, colleagues, and participants who contributed valuable insights and questions during the talk show, ensuring that the event ran smoothly and provided meaningful benefits to the community. Lastly, we appreciate all the team members involved in organizing this event, who worked with great dedication and commitment to its success.

REFERENCES

- Ali, B., Khuridah, M., Alsameen, E., Alsadiq, A., Alqahtani, A., Abdulaziz, A., , A., Hussin, B., Shiban, A., Rizq, M., Alabid, W., Alhaffeh, I., Abdrababarasool, Q., & Alosaif, J. (2024). COMPREHENSIVE REVIEW OF PUBLIC HEALTH CAMPAIGNS, MEDIA INFLUENCE, AND HEALTH EDUCATION. *Journal of Ecohumanism*. <https://doi.org/10.62754/joe.v3i8.5192>.
- Chetiya, A. (2024). Reducing Health Inequities through Water, Sanitation, and Hygiene (WASH) Infrastructure. *International Journal of Scientific Engineering and Research*. <https://doi.org/10.70729/se241211175407>.
- De Lucena, R., & Medeiros, M. (2024). APPROACHES ON SANITATION AND HEALTH IN THE LEGAL AMAZON. *REVISTA GEONORTE*. <https://doi.org/10.21170/geonorte.2024.v.15.n.51.63.86>.
- J., N. (2024). Preventive Measures for Diarrhea in Communities Lacking Clean Water Supply: A Scientific Review. *RESEARCH INVENTION JOURNAL OF BIOLOGICAL AND APPLIED SCIENCES*. <https://doi.org/10.59298/rijbas/2024/433943>.

- Opere, M. (2023). Analysing the interplay of environmental virology, public health, and sanitation: a comprehensive review from a Kenyan perspective. *Frontiers in Cellular and Infection Microbiology*, 13. <https://doi.org/10.3389/fcimb.2023.1256822>.
- Paes, A. (2024). Basic sanitation as a major factor in the public health of communities. *RCMOS - Revista Científica Multidisciplinar O Saber*. <https://doi.org/10.51473/rcmos.v2i2.330>.