



## Description of The Level of Public Knowledge Related to The Scheduled Sludge Service Program at Perumda Tirtanadi

Yulia Khairina Ashar<sup>1</sup>, Anggie Al-Qarana Savitri<sup>2</sup>, Dian Permata Sari<sup>3</sup>, Dita Aryza<sup>4</sup>

<sup>1,2,3,4</sup>Public Health Study Program, Universitas Islam Negeri Sumatera Utara

E-mail correspondence: [yuliakharinaa@uinsu.ac.id](mailto:yuliakharinaa@uinsu.ac.id)

<p><b>Track Record Articles</b></p> <p>Accepted: 18 March 2023 Revised: 9 May 2023 Published: 1 September 2023</p> <p><b>How to cite:</b> Ashar, Khairina, Y., Savitri, Al-Qarana, A., Sari, Permata, D., &amp; Aryza, D. (2023). Description of The Level of Public Knowledge Related to The Scheduled Sludge Service Program at Perumda Tirtanadi. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal Health</i>, 5(3), 758–767.</p>	<p style="text-align: center;"><b>Abstract</b></p> <p><i>Waste water is one of the sanitation factors that is of concern to the Indonesian government. One of the environmental pollution that occurs is wastewater. The occurrence of wastewater pollution can cause media to cause various types of diseases. This study aims to find out how to describe the level of public knowledge about the L2T2 program (Scheduled Sludge Service) at PERUMDA Wastewater Marketing Branch. This research method is descriptive qualitative. The instruments used were interview guidelines and questionnaires given to 7 informants. The data collection technique used is the triangulation technique. This research was conducted in February 2023. The research location was taken at Perumda Tirtanadi Wastewater Marketing Branch on Jalan Tani &amp; Jalan Rumah Sumbu. The results of this study are based on several informants saying that it is important to have this L2T2 program. Due to the blessings of this program, cleanliness in several disposal sites such as ditches and rivers has become cleaner. The conclusion of this study is the lack of public knowledge about this program, and the community does not want to pay a predetermined monthly rate and they do not want to damage the condition of their homes due to a control hole created. Suggestions from this research are the superiors of Perumda Tirtanadi should encourage more door-to-door outreach to the community so that later the community will better understand the benefits of disludging septic tanks.</i></p> <p><b>Keywords:</b> <i>Environment, Knowledge, Waste Water</i></p>
--	--

## INTRODUCTION

Across the developing world, the rapid growth of cities has led to an increase in unplanned settlements. One area of particular concern is access to sanitation (Sudrajat et al., 2020). Sanitation is one of the problems that needs to be of concern to the Medan City government, especially in the management of fecal sludge. Management of review sludge in this city has not been running as it should. Referring to the 6th SDG's 2030 goal, which is to ensure availability and sustainable management of clean water and sanitation for all (BAPPENAS and UNICEF, 2018).

Realizing adequate and healthy sanitation for its citizens is a challenge for most local governments in Indonesia because sanitation is a basic need of the community that must be

met to improve the degree of community welfare. Sanitation itself, as explained in the Presidential Regulation of the Republic of Indonesia Number 185 of 2014 concerning the Acceleration of Supply of Drinking Water and Sanitation is all made efforts to ensure the realization of conditions that meet health requirements through sanitation development (Rizky et al., 2023) . In general, sanitation is the activity of providing controlled and safe facilities and services for the disposal of urine and feces. Improved sanitation is a major vector of worldwide disease and good and proper sanitation has a positive impact on environmental health (WHO & UNICEF, 2020) .

In 2017 , there are still 2.4 billion people who do not have and use good sanitation. Among those 2.4 billion people, there are still around 946 million people who have absolutely no access to sanitation, namely by continuing to practice open defecation (Yushinta et al., 2022) . The unsafe management of faecal waste and wastewater continues to pose major risks to public health and the environment (Gumilangsari et al., 2021) . The decrease in the degree of water and sanitation quality caused by the disposal of human feces can be overcome, set aside, suppressed or minimized if the components that cause the problem are minimized, kept away or separated from human contact (Hasibuan et al. , 2022) .

The city of Medan is the capital city of North Sumatra Province with an area of 265.10 square kilometers. The Central Statistics Agency (BPS) noted that Medan City has a population of 2,460,858 people this year. The population is spread across 21 districts. The population density of Medan City reaches 9,283 people/km<sup>2</sup> (BPS, 2022) . Along with the rapid population growth, the use of clean water has also increased which has an impact on increasing the amount of waste water that can pollute the environment (Apriansyah, 2018) . One way to monitor and control wastewater can be done by improving services in terms of sanitation. Waste water generated from household activities, if it is directly dumped into water bodies without proper management, will have the potential to cause disruption to the environment, both from an aesthetic point of view of public health and from an environmental point of view of water bodies (Oktarina & Haki, 2018) .

Medan City Government has actually made clear regulations in handling review sludge management through Medan Major Regulation Number 29 of 2019 concerning the Management of Fecal Sludge Services (Suparta, 2021) . In article 3 of the objectives of the Mayor's Regulation, it is stated that each registered local unit must undergo desludging, the desludging is carried out on a scheduled or periodic basis at intervals of once every 3 years (Perwali, 2019) .

However, currently the majority of the people of Medan City manage mud surveys relying only on the local management process (only in the septic tank), without carrying out regular or periodic desludging of sludge reviews. Even if someone is doing desludging, even then if the septic tank has problems, such as being full or clogged. Most people think that a septic tank that is not problematic (clogged or overflows) is still considered capable of working properly. Even if a septic tank is not drained periodically, and is used for years without overflow, then it is indicated that a septic tank leak has occurred ( Harper, 2018) .

This is of course a health hazard, especially for those who use groundwater, because it is possible that groundwater has been polluted by water from the septic tank processing and can cause disease originating from contamination of the review sludge water (Hidayah, 2018) . Latrines / toilets 3 are used by 3.4 billion people worldwide, but very few know how to manage full septic tanks safely and effectively , so it can be said that the level of human knowledge is very influential human health and the environment (Harada, 2019) .

Based on the data and facts above, the researcher wanted to know how the level of public knowledge about the L2T2 program was described in PERUMDA Wastewater Marketing Branch. So that researchers are interested in taking the title " *Description Level of Public Knowledge of the L2T2 Program at Perumda Tirtanadi Wastewater Marketing Branch* " .

## **METHODS**

This research was conducted in February 2023. The research location was taken at Perumda Tirtanadi Wastewater Marketing Branch at Jalan Tani & Jalan Rumah Sumbu, Kec. Medan City, Medan City, North Sumatra. The type of research used in this study is a qualitative descriptive method. The instruments used in this study were interview guidelines and questionnaires given to 7 informants, consisting of 3 staff/employees of Perumda Tirtanadi, 2 general public, and 2 wastewater customers. The data collection technique used in this study is a triangulation technique, namely a data collection technique that combines various existing data and sources, in the form of interviews. The type of interview used in this research is a semi-structured interview.

## RESULTS

**Table 1. Characteristics of Informants**

Name	Gender	Position
RA	P	Head of General Section of PDAM Wastewater Marketing Branch
ST	L	Head of PDAM Network, Wastewater Marketing Branch
IT	P	Head of PDAM Wastewater Marketing Division
YL	P	General public
RT	P	General public
HP	L	wastewater customers
SJ	L	wastewater customers

### Interview results

Perumda Tirtanadi Wastewater Marketing Branch was established in 2015 and is one of the drinking water companies under the auspices of Perumda Tirtanadi, North Sumatra Province. According to the informant, there are 2 branches of the wastewater company, namely the Wastewater Marketing Branch of PERUMDA Tirtanadi and the Cemara Wastewater Treatment Plant. The results of this study were obtained from informants from Perumda Tirtanadi Wastewater Marketing Branch of Perumda Tirtanadi.

At Perumda, the Wastewater Marketing Branch serves desludging or commonly known as L2T2 which aims to improve public health through a beautiful environment. Household waste is sucked from the SPAL. Then the household waste is transported and brought to Perumda Tirtanadi Cemara to be processed through various processes where each process will be checked for air quality in the Laboratory, so that later domestic wastewater does not pollute the river and damage the environment of the surrounding community.

During the L2T2 program at Perumda Tirtanadi Water Marketing Branch Of course there are still some problems with this waste, when interviewed by informants, of course there are still some problems with this waste, one of the problems in Perumda Tirtanadi Wastewater Marketing Branch is lack of knowledge . community about the L2T2 program ( Scheduled Sludge Service ). Like the following expression:

*"...many people still don't know about the L2T2 program where this program is involved in desludging septic tanks/box control. The community does not understand the impact on health and the surrounding environment from a full septic tank."* (RA informant) .

Many people who join the L2T2 program don't know how the program process works. Because most of the customers of wastewater are people who previously subscribed to clean water.



Communities who have subscribed to clean water, especially those living in Cemara Asri housing, automatically become customers of wastewater. However, because some of the people who moved to the housing were already in the condition of the available houses, this resulted in many people not knowing where their *septic tank toilet was located*. This was discovered when researchers and company staff made direct observations in the residential area of Cemara Asri. Like the following expression:

*“...there are still many people who do not know the location of their septic tank/control box. Therefore, they are reluctant to clean up when the septic tank is full and clogged. (IT informants)*

The process of disludging community septic tanks certainly has many obstacles and challenges, one of which is education and outreach to the community, as stated by the informant as follows:

*“... at the beginning of the formation of the L2T2 program, there must have been those who opposed this program. Because in carrying out the desludging process, you have to dismantle or make a control hole or control box as a place to lay the pipe. People sometimes object to the demolition around the warehouse, especially the condition of the residents' houses which already have tiled floors, they object because it will cause damage. However, we are still conducting outreach to village and sub-district offices, health centers, and the Health Office. As an effort to improve cleanliness in the city of Medan. (Informant ST).*

Not only that, based on the results of interviews that researchers conducted with wastewater customers, one of them SJ revealed *“...Actually I don't really know what a scheduled sludge review service program is and what the purpose of conducting the sludge review is. is, what I do know is that if it becomes customers of clean water have automatically become customers of wastewater, and what I caught when the waste water regional government team was conducting outreach was that if you participate in this program you will be charged a tariff , therefore I don't want to know about this program.”*

The L2T2 program for wastewater treatment in Medan City has been running for a long time, but there are still various obstacles, especially the problem of the lack of public knowledge about this program. Of course there are still supporting factors in the process of running the L2T2 program, such as supporting factors for environmental cleanliness in Medan City, especially in densely populated areas or areas. Another factor is to reduce the spread of diseases due to waste water pollution in the community environment.

### **Community Perceptions of the L2T2 Program**

With the L2T2 program of PERUMDA Tirtanadi Waste Water Marketing Branch which aims to improve public health status through a beautiful environment, Perumda provides facilities in the form of straws that can make it easier for the septic tank community to not clog and not easy full. However, in reality there are still many people who do not know and do not want to know about the L2T2 program. Based on the interviews we conducted with the general public with the initials RT and YL there is a knowledge factor, where they still lack knowledge about the health and environmental impacts of the L2T2 program.

the general public's perception "The L2T2 program has nothing to do with health and the environment, because for many years my family and I have had no health problems." (YL informant)

The community does not know the impact that will occur in the days to come which can cause several diseases as a result of this waste if it is polluted. However, PERUMDA Tirtanadi Wastewater Marketing Branch has conducted socialization at the Office of the Village Head/Lurah and Community Health Centers in several areas which are still a small part of the L2T2 program.

Based on the description above and data obtained through the Central Statistics Agency (BPS), it is known that the population of Medan City is 2,460,858 people in 2022 and it is known that there are 56,488 customers of the L2T2 program in Medan City. This data was obtained through PERUMDA Wastewater Marketing Branch. If it is explained that there are only about 56% of Medan City residents who are customers of the L2T2 program and have more knowledge than other residents about this L2T2 program.

As stated by one of the wastewater customers, " in my opinion, it is important to have this L2T2 program implemented. Because thanks to the cleaning program in several places, such as landfills, ditches, and rivers are cleaner. Although there are still people who object to the monthly payment rate" (Informant HP).

## DISCUSSION

The problem of wastewater will continue to exist, because wastewater, especially household waste and waste from human waste, cannot be eliminated, but can only be reduced by means of suction in community septic tanks, which will then be treated so as not to contaminate it environment . surroundingenvironment. However, this is related to the mindset and awareness of people who are still underdeveloped. They don't think about how to treat wastewater other than by directly stockpiling it. They also did not expect that the presence of

this waste would cause various health problems, one of which was diarrhea (SUDRAJAT et al., 2022) .

In line with the research conducted (Pratiwi, 2019) Overview Sludge that is never drained still contains pathogenic microorganisms which can seep into the soil and enter the groundwater system (Yuanita et al., 2021) . In addition, as an effort to maintain and improve the performance of the WWTP so that sludge does not accumulate which will reduce the quality of the waste, the sludge must be drained or vacuumed every 3 years , because if desludging is not carried out several diseases will arise due to improper disposal of the review. in place, namely, among others, typhoid, dysentery, cholera, intestinal worms, and so on.

Referring to the theoretical studies that have been carried out by (IUWASH, 2018) , most of the septic tanks used by people in Indonesia are not built to the correct specifications. In fact, many of them are not worthy of being called a septic tank because the walls are basically not made of waterproof material (Wardono et al., 2022) .

Based on the results of observations by researchers while at the location and interacting with the community who do not know about the benefits for the environment and the impact on health L2T2 Program (Scheduled Sludge Service) PERUMDA Tirtanadi Wastewater Marketing Branch. The achievement is that the level of public knowledge is still very minimal about the program which results in their knowledge .

### **Community Knowledge Program About the Benefits of L2T2**

Not much is known about the community's knowledge about the benefits of the L2T2 program, especially for people who subscribe to clean water in settlements. From the results of the interviews and observations conducted, it turns out that there are still many people who do not know about this program. Moreover, people who live in settlements do not know the location of the *septic tank pit* (Azwar et al., 2020) . So when the socialization was carried out, many people refused to take part in this program, because they had to dismantle part of their houses. This is considered by the community as a loss because they have to incur costs in the process of making the *septic tank pit* . (Aminah, 2020) states that to increase community involvement in the development of wastewater management such as the L2T2 program, the community needs a complete understanding of the impact of wastewater on water resources, both surface water and ground water. (Cahyono et al., 2018) .

In addition, some people outside the housing area when the L2T2 socialization program was carried out, some did not agree because they had to pay a set rate every month, especially the lower middle class people. (Aziza, 2018) .

In this case, in addition to the lack of public knowledge about the L2T2 program, even though socialization had already been carried out (Nugroho, 2020). It turns out that the attitude of the people who reject this program is not only because of things that interfere with health problems and environmental pollution, but also how the losses are caused by the implementation of this L2T2 program. It's like they don't want to issue a predetermined monthly rate and they also don't want to damage the condition of their house by creating a control hole.

## CONCLUSION

From the research results obtained the following conclusions:

1. There are various obstacles to the L2T2 program, one of which is the lack of public knowledge about this program. The supporting factors in the process of running the L2T2 program, such as environmental cleanliness in the city of Medan.
2. Communities who reject the L2T2 program not only because of things that interfere with health problems and environmental pollution, but they don't want to issue a predetermined monthly rate and they also don't want to damage the condition of their homes as a result of making control holes.

## SUGGESTIONS

In order to develop a scheduled sludge service program, suggestions from researchers are that Perumda Tirtanadi's superiors should encourage more *door to door socialization* to the community so that later the community will better understand the benefits of disludging septic tanks.

## REFERENCE

- Aminah, firdaus daud, Mu, N. (2020). *Relationship of knowledge and attitudes towards wastewater with community-based domestic wastewater management in Bontoa sub-district, Maros district 1)*, . i , 1–9.
- Apriansyah, A. (2018). *Evaluation of the Implementation of the Scheduled Sludge Service Program in Surakarta City* .
- Azizah, C. (2017). Scheduled Fecal Sludge Service in Lowokwaru District, Malang City. *Theses* , 1–198. <http://repository.its.ac.id/2558/>
- Azwar, A., BB, S., & Yusuf, M. (2020). Mechanism for Implementation of Scheduled Fecal Sludge Services (LLTT) Study at the Office of Public Works and Spatial Planning (PUPR) of Kendari City. *NeoRespublica : Journal of Government Science* , 1 (2), 181.
- BAPPENAS and UNICEF. (2017). SDG Baseline Report on Children in Indonesia. *Ministry of National Development Planning (Bappenas) and United Nations Children's Fund* , 1–



105. [https://www.unicef.org/indonesia/id/SDG\\_Baseline\\_report.pdf](https://www.unicef.org/indonesia/id/SDG_Baseline_report.pdf)
- BPS. (2022). *MEDAN CITY BPS* . <https://medankota.bps.go.id/publication.html>
- Cahyono, WH, Wahyu, Aisyah, S., & Halang, B. (2017). Knowledge, attitudes and behavior of the head of the household towards household wastewater management (Case in Pekapuran Raya Sub-District) East Banjarmasin sub-district, Banjarmasin city. *EnviroScienteeae* , 7 , 50–57.
- Gumilangsari, S., Abfertiawan, MS, & Soewondo, P. (2021). Study of Existing Business Models in Implementation of Scheduled Fecal Sludge Services (LLTT) Under Work Units (Case study: Bekasi City and Makassar City) and BUMD (Case study: Medan City and Surakarta City). *Journal of Environmental Science* , 19 (3), 599–611.
- Harada. (2016). Challenges and Opportunities of Faecal Sludge Management for Global Sanitation, In: *Towards Future Earth: Challenges and Progress of Global Environmental Studies*. *Towards Future Earth: Challenges and Progress of Global Environmental Studies* , May 2019 , 81–100.
- harper. (2018). Intentions Toward Fecal Sludge Management Rural Developing Communities. *In 16th Engineering Project Organization Conference:(Re) Organizing in an Uncertain Climate* , July , 25–27.
- Hasibuan, NH, Suryati, I., Khairani, F., & Dalimunthe, NIP (2022). Optimization of Sanitation Facilities to Support Open Defecation Free (ODF) Programs in Dusun 13 Percut Village, Percut Sei Tuan District. *ABDIMAS TALENTA: Journal of Community Service* , 7 (1), 407–418. <https://doi.org/10.32734/abdimestalenta.v7i1.6968>
- Hidayah, LN (2018). Partnership Between Surakarta City Government and USAID (UNITED STATE AGENCY INTERNATIONAL DEVELOPMENT) Iuwash Plush Project in Scheduled Sludge Service Program in Sound Governance Perspective. *BMC Public Health* , 5 (1), 1–8.
- IUWASH. (2017). *THE TIME IS NOW! RUN A SCHEDULED FALL SERVICE* .
- Nugroho, KT (2020). *Implementation of Scheduled Fecal Sludge Management Program in Surakarta City* . 14–28.
- Oktarina, D., & Haki, H. (2018). Planning of the Faecal Sludge Processing Installation for the Palembang City Pond System. *Journal of Civil and Environmental Engineering* , 1 (1), 74–79.
- Perwali. (2019). *Medan Mayor Regulation Number 29 of 2019 Regarding Management of Fecal Sludge Services* .
- Pratiwi, Y. (2019). *Study of the Needs of a Fecal Sludge Treatment Installation (IPLT) in Kediri Regency* .
- Rizky, D., Arifin, A., & Sutrisno, H. (2023). Analysis of the Conditions of Fecal Sludge Services at IPLT Pontianak City. *Journal of Wetland Environmental Technology* , 11 (1), 066. <https://doi.org/10.26418/jtlb.v11i1.59050>
- Sudrajat, A., Sudarno, S., & Luqman, Y. (2020). Analysis of Scheduled Sludge Service Plan (L2T2) for Sustainable Management of Sludge Services in Cilacap City. *Proceedings of the National Seminar on Suboptimal Land* , 54–61.
- SUDRAJAT, A., Sudarno, S., & Luqman, Y. (2022). *Implementation Strategy for Scheduled Sludge Service Program (L2T2) in Cilacap City* . [https://eprints2.undip.ac.id/id/eprint/8070/%0Ahttps://eprints2.undip.ac.id/id/eprint/8070/3/3 BAB 2.pdf](https://eprints2.undip.ac.id/id/eprint/8070/%0Ahttps://eprints2.undip.ac.id/id/eprint/8070/3/3%20BAB%202.pdf)
- Suparta, IN (2021). *PLANNING FOR DEVELOPMENT OF SCHEDULED SEWAGE SERVICE IN THE* . 4 (3), 200–209.
- Wardono, H., Amri, U., & Purba, A. (2022). Potential Sustainability of Scheduled Fecal Sludge Service Program (Llitt), Case Study: City of Bandar Lampung. *Lampung Engineering*

*Journal* , 1 (2). <https://doi.org/10.23960/jrl.v1i2.7>

- WHO, & Unicef. (2020). Water, Sanitation and Proper Waste Management in Handling the COVID-19 Outbreak. *WHO And UNICEF Interim Guidelines 19 March 2020* , 2–4. [https://www.who.int/docs/default-source/searo/indonesia/covid19/who-unicef---air-sanitation-higiene-dan-pengelolaan-limbah-yang-tepat-dalam-penanganan-wabah-covid-19.pdf?sfvrsn=bf12a730\\_2](https://www.who.int/docs/default-source/searo/indonesia/covid19/who-unicef---air-sanitation-higiene-dan-pengelolaan-limbah-yang-tepat-dalam-penanganan-wabah-covid-19.pdf?sfvrsn=bf12a730_2)
- Yuanita, M., Nur Syahbiba, I., & Haryono, N. (2021). Sanitation Management in Local Government: A Case Study of Institutional Improvement of Sludge Treatment Installation Facilities in Ponorogo District Sanitation Management in Local Government: A Case Study of Institutional Improvement of the Sludge Treatment Pla. *Journal of Government and Administrative Reform* , 2 (2), 102–120. <https://e-journal.unair.ac.id/JGAR/index>
- Yushinta, AK, Martaleni, M., & Astuti, R. (2022). Implementing sanitation marketing as a form of social marketing: A case scheduled desludging service, Malang City. *Journal of Strategic Management and Business Applications* , 5 (2), 319–338. <https://doi.org/10.36407/jmsab.v5i2.647>

