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The Relationship between Predisposing Factors and Community Participation in the Utilization of Communal Wastewater Treatment Plants (IPAL) in the Siboas Environment, Sihasto Village, Parlilitan District 2021

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ABSTRACT

Sanitation is a deliberate behavior in cultivating clean living with the aim of preventing humans from coming into direct contact with dirt and other dangerous waste materials. Based on interviews with 8 families in the Siboas neighborhood of Sihasto Village, they did not use the IPAL because they felt that using the IPAL was of no benefit, did not want to dismantle the old sewer pipe to the IPAL because of costs and did not want to disturb their activities. The aim of this research is to determine the relationship between predisposing factors and community participation in the communal Waste Water Treatment Plant (IPAL) program in the Siboas neighborhood, Sihasto Village, Parlilitan District. This research design uses an analytical survey with a cross sectional approach. Data analysis used univariate analysis and bivariate analysis with the chi-square statistical test. The results of the chi-square test analysis show the value of each variable, including knowledge obtained p-value = 0.020, attitude p-value = 0.002 and economic status obtained p-value = 0.011. The conclusion of this research is that there is a relationship between knowledge, attitudes and economic status with community participation in the Communal IPAL program in the Siboas Environment, Sihasto Village, Parlilitan District. It is recommended to the Head of the Community Self-Help Group (KSM) that this research can be used as input to the community regarding the communal Waste Water Treatment Plant program in the Siboas Environment, Sihasto Village, Parlilitan District 2021, such as: Increasing appropriate and clear education to the community about the benefits and advantages of the IPAL program in preventing disease and maintaining environmental health in the community.

Keywords:
Predisposing Factors, Participation in Communal IPAL

INTRODUCTION

Domestic wastewater is wastewater that comes from daily human activities related to water use (PermenLHK No.68 of 2016). Domestic wastewater quality standards are a measure of the limits or levels of pollutant elements and/or the amount of pollutant elements that are allowed to exist in domestic wastewater that will be discharged or released into surface water. Domestic wastewater is waste produced from household, industrial and similar activities which has the potential to become a source of pollution to water bodies and the environment. Domestic wastewater contains organic compounds and other chemical compounds as well as the presence of pathogenic microorganisms so that it can have an impact on society (Said and Widayat, 2013).

Waste Water Treatment Plant is a facility used to treat waste water produced from household or domestic activities (waste from toilets, from washing/bathroom water). Communal IPAL is a residential scale domestic wastewater treatment system. Communal IPAL is used or serves several heads of families (KK) (Iskandar et al, 2016).

A good IPAL is an IPAL that can reduce the concentration of pollutants so that the water that will be discharged into water bodies does not pollute the environment. Therefore, it is necessary to treat waste water as much as possible, so that it does not cause negative impacts on living things. Communal WWTP components consist of a waste processing unit, piping network (control tank & maintenance pit) and household connections.

Community-based total sanitation (STBM) is an approach to changing clean living and sanitation behavior through community empowerment with trigger methods and improving human health. The Healthy Environment Program aims to create a healthier quality environment through developing regional health systems to drive cross-sector development with a health perspective. The aim of STBM in the Siboas Environment of Sihasto Village is to safeguard household liquid waste originating from the remainder of washing, bathroom and kitchen activities that meet environmental health quality standards and health requirements that are able to break the chain of disease transmission, protect water sources, both surface and water. soil from pollutants.

Community participation is the participation of all community family members in solving community problems. The role of the community in utilizing IPAL construction must start from the first stage, so that the community can understand their rights and obligations before the sanitation facilities are built and the community knows how to process the communal IPAL. This is done so that there is a greater sense of community ownership. So that they can participate in implementation, planning and operation and maintenance. The community's right to service sanitation facilities for wastewater treatment on a residential scale is to receive sanitation services in accordance with the agreement. Meanwhile, the community's obligation is to contribute thoughts and time.

According to Afriyati, et al in 2015, judging from the level of involvement, community participation can be categorized as free participation at the planning and implementation stages. Judging from the way of involvement, community participation can be categorized as direct participation which occurs at all stages of participation. This method of community participation was successfully carried out freely and normally without being forced, and the community was involved directly and intensively. (Afriyati et al., 2015)

According to Afandi's research in 2017, community participation in the dominant form of community involvement in the development stage was personnel, namely 76%, in the

operational and maintenance stages of the IPAL, 15.63% of community participation stated that they had never been involved (17).

Meanwhile, based on Mardiah's research in 2019, the role of the community in the form of a relationship between attitudes and community participation in the IPAL program is that (72.1%) have a negative attitude, as many as (4.7%) participate in the IPAL program and the same number (67%) .4%) did not participate in the IPAL program. (Hasibuan, 2019)

The community's habit of disposing of waste directly into water bodies/rivers and empty land as well as the lack of community will to manage waste produced in industrial and household activities results in a decrease in river water quality due to the entry of pollutant loads, both solid waste and liquid waste, into river water and land. empty because this method is very easy to do. It is feared that this condition will get worse over time if corrective efforts are not made immediately, which will have an impact on human health.

Seeing this, through the Community-Based Infrastructure Work Unit, Directorate of Residential Environmental Health Development, Ministry of PUPR, the Humbang Hasundutan government in the communal scale wastewater management sanitation program built a spa. This community participation is needed to increase the feeling of belonging in every activity process. Community participation in every activity, the community has the opportunity to develop personal skills, leadership and responsibility through a learning by doing process (Slamet, 1993).

According to data obtained from the Head of the Siboas Ward, Sihasto Village, Parlilitan District, the number of heads of families is 102 heads of families (KK). Of the 102 families, only 35 families have used communal IPAL and the remaining 67 families. Construction of a communal wastewater treatment plant (IPAL) in the Siboas neighborhood of Sihasto village began in early March 2020 until August 2020 and the communal wastewater treatment plant began operating in September 2020 in neighborhood 29, Pekan Labuhan subdistrict.

Based on interviews with 8 families in the Siboas neighborhood of Sihasto Village, they did not use the IPAL because they felt that using the IPAL was of no benefit, did not want to dismantle the old sewer pipe to the IPAL because of costs and did not want to disturb their activities. On the other hand, community participation itself is a manifestation of efforts to increase community capacity based on the community's willingness and ability to be involved in every stage of development.

The results of this research are expected to provide information regarding the IPAL performance system, knowing the relationship between predisposing factors and community participation, namely knowledge, attitudes and economic status so that it can be used for the development of science, especially Communal IPALs, which is then used as input for the process of applying natural thinking in understanding, analyzing a problems that occur in the field as well as to increase knowledge about predisposing factors that influence community participation in the communal Waste Water Treatment Plant (IPAL) program.

METHOD

This research is an analytical survey research carried out to achieve the objectives to be achieved in this research using cross sectional research, namely researching a reference

population which is carried out at any time or a certain period of time to find out health problems or risk factors that can cause health problems in people. public.

The population in this study were all heads of families, namely 102 heads of families (KK) in the Siboas neighborhood, Sihasto Village, Parlilitan District. From the calculation results, the sample size was 50 people. . The data collection technique in this research was simple random sampling (simple random technique) using the help of a list of the number of families in the Siboas neighborhood, Sihasto Village, Parlilitan District.

Table 1 Operational Definition

Variable	Operational Definition	Measuring instrument	Measuring scale	Measure Results
Knowledge	Everything the respondent knows about the Waste Water Treatment Plant program Communal (WWTP)	Questionnaire	Ordinal	1. Good 2. Enough 3. Not enough
Attitude	Respondents' viewsRegarding the existence of the IPAL use program	Questionnaire	Nominal	1. Positive 2. Negative
Economic Status	Income level of Head of Family in a Month	Questionnaire	Nominal	1. Low 2. Tall
Community participation in the IPAL program Communal	People who use IPAL to dispose of household waste water	Questionnaire	Nominal	1. Participate 2. Didn't participate

Method of collecting data

Primary data is obtained directly from research subjects using measuring instruments or data collection tools, directly from the subject as a source of information sought through a questionnaire containing questions that have been prepared by the researcher. Secondary data is data obtained through other parties, not directly obtained by researchers from their research subjects. Secondary data is obtained by researchers from their research subjects. Secondary data was obtained from the Siboas Village office, Siboas Village. This technique is carried out by distributing a questionnaire or list of questions that will be given in accordance with the existing implementation.

Data Processing Methods

The collected data is processed using the following steps:

1. Collecting
   Collecting data comes from questionnaires that have been answered by respondents
2. Checking
   This is done by checking the completeness of the respondent's answers on the questionnaire sheet with the aim that the data obtained can be processed correctly.
3. Coding
   In this step the author assigns codes to the variables studied, for example the name is changed to number 1,2,3.....and so on.
4. Entering
   Data entry, namely the answers from each respondent which are still in the form of

"codes" (numbers or letters) are entered into the computer program used by the researcher.

5. Data Processing
   All data that has been input into the computer application will be processed according to the needs of the research.

Data analysis

Quantitative data analysis was carried out using a statistical program (statistics/data analysis) with the following stages:

1. Univariate Analysis
   Univariate analysis is analysis carried out analyzing each variable from the research results or focusing on depicting or describing the data that has been obtained or describing the frequency distribution of each research variable, namely knowledge, attitudes, economic status, use of IPAL and institutional aspects.
2. Bivariate Analysis
   Bivariate analysis is a sample with two different subjects which is used to see the relationship between the independent variables (knowledge, attitudes and economic status) and the dependent variable (Community Participation in the Communal IPAL Program). To prove that there is a significant relationship between the independent variable and the dependent variable, Chi-square analysis is used, at the statistical significance limit of the p value (0.05). If the calculation results show the p value < p value (0.05) then it is said that (Ho) is rejected, meaning that the two variables statistically have a significant relationship. Then, to explain the existence of an association (relationship) between the dependent variable and the independent variable, cross tabulation analysis is used.

RESULTS AND DISCUSSION

Univariate Analysis

1. Respondent Characteristics

The respondents sampled in this research were the people of the Siboas Environment, Sihasto Village. Community characteristics consist of: age, gender, education and occupation.

Table 1. Frequency Distribution of Respondents Based on Age and Gender Characteristics in the Siboas Environment, Sihasto Village, Parlilitan District 2021

No	Characteristics	F	%
	Age		
1.	<29 Years	5	10.0
2.	30-39 Years	19	38.0
3.	40-49 Years	22	44.0
4.	>=50 Years	4	8.0
	Amount	**50**	**100.0**
	Gender		
1.	Man	22	44.0
2.	Woman	29	56.0
	Amount	**50**	**100.0**

Based onTable1 known number of respondents with age < 29 years as many as 5 (10%), 30-39 years as many as 19 (38%), 40-49 years as many as 22 (44%) and 50 years

as many as 4 (8%). Regarding gender characteristics, it is known that the number of respondents with male gender was 22 (44%), and female as many as 28 (56%).≥

Table 2 Frequency Distribution of Respondents Based on Education and Employment Characteristics in the Siboas Environment, Sihasto Village, Parlilitan District 2021

No	Characteristics	F	%
	Education		
1.	College	7	14.0
2.	SENIOR HIGH SCHOOL	24	46.0
3.	JUNIOR HIGH SCHOOL	14	28.0
4.	elementary school	6	12.0
	Amount	**50**	**100.0**
	Work		
1.	Civil servants/TNI/Polri	17	34.0
2.	Traders/private	13	26.0
3.	Fisherman	13	26.0
4.	Farmer	2	4.0
5.	IRT	4	8.0
6.	Pension	1	2.0
	Amount	**50**	**100.0**

Based on table 2 characteristics of the type of education show that the number of respondents with a final education of elementary school was 6 (12%), junior high school was 14 (28%), high school was 23 (46%) and college was 7 (14%). In the characteristics of respondents who have jobs as civil servants/TNI/Polri as many as 17 (34%), traders/private sector as many as 13 (26%), fishermen as many as 13 (26%), farmers as many as 2 (4%), housewives as many as 4 (8 %) and retirees as much as 1 (2%).

2. Distribution of Community Knowledge

The research results and explanation of respondents' answers based on knowledge can be seen in the following table.

Table 3 Frequency Distribution of Respondents Based on Knowledge in the Siboas Environment, Sihasto Village, Parlilitan District 2021

No	Knowledge	Amount	Percentage (%)
1	Not enough	22	44.0
2	Enough	13	26.0
3	Good	15	30.0
	Total	**50**	**100.0**

Based on Table 3, it is known that the number of respondents with poor knowledge was 22 (44%), 13 (26%) had sufficient knowledge and 15 (30%) had good knowledge.

3. Distribution of Community Attitudes

The research results and explanation of respondents' answers based on attitudes can be seen in the following table.

Table 4 Frequency Distribution of Respondents Based on Attitudes in the Siboas Environment, Sihasto Village, Parlilitan District, 2021

No.	Attitude	Amount	Percentage %
1.	Positive	28	56.0
2.	Negative	22	56.0
	Amount	**50**	**100.0**

Based on Table 4, it is known that the number of respondents with a negative attitude was 22 (44%) and 28 (56%) with a positive attitude.

4. Distribution of Community Economic Status

The research results and explanation of economic status can be seen in the following table:

Table 5 Frequency Distribution of Respondents Based on Economic Status in the Siboas Environment, Sihasto Village, Parlilitan District 2021

No.	Economic Status	Amount	Percentage %
1.	Tall	26	52.0
2.	Low	24	48.0
	Amount	**50**	**100.0**

Based onTable 5, it is known that the number of respondents with low economic status was 24 (48%) and high was 26 (52%).

5. Community Participation in the IPAL Program

The results of the research and explanation regarding community participation in the IPAL program can be seen in the following table:

Table 6 Frequency Distribution of Respondents Based on Community Participation in the IPAL Program in the Siboas Environment, Sihasto Village, Parlilitan District 2021

No.	Community participation in IPAL Program	Amount	Percentage%
1.	Participate	30	60.0
2.	Opt Out	20	40.0
	Amount	**50**	**100.0**

Based onTable 6 it is known that the number of respondents who did not participate was 20 (40%), while those who participated were 30 (60%).

Bivariate Analysis

1. The Relationship between Knowledge and Community Participation in the Ipal Program

The results of research on the relationship between knowledge and community participation in the IPAL program can be seen in Table 4.7.

Table 7. The Relationship between Knowledge and Community Participation in the IPAL Program in the Siboas Environment, Sihasto Village, Parlilitan District

No.	Knowledge	Community Participation in the IPAL Program				Total		*Sig-p*
		Participate		No Participate				
		F	%	F	%	f	%	
1.	Good	13	86.7	2	13.3	15	100	**0.020**
2.	Enough	8	61.5	5	38.5	13	100	
3.	Not enough	9	40.9	13	59.1	22	100	

Based on Table 7, the relationship between knowledge and community participation in the IPAL program, it is known that of the 15 respondents who had good knowledge, 13 respondents (86.7%) participated in the IPAL program and 2 respondents (13.3%) did not participate. in the IPAL program. Of the 13 respondents who had sufficient knowledge, 8 respondents (65.5%) participated in the IPAL program and 5 respondents (38.5%) did not participate in the IPAL program. Furthermore, of the 22 respondents who had less

knowledge, 9 respondents (40.9%) participated in the IPAL program and 13 respondents (59.1%) did not participate in the IPAL program.

Based on the results of the chi-square test in Table 4.7, the p value = 0.020 < 0.05, it is concluded that there is a significant relationship between knowledge and community participation in the Siboas Environment, Sihasto Village, Parlilitan District.

2. **The Relationship between Attitudes and Community Participation in the IPAL Program**

Table 8. The Relationship between Attitudes and Community Participation in the IPAL Program in the Siboas Environment, Sihasto Village, Parlilitan District

No.	Attitude	Community Participation in the IPAL Program				Total		*Sig-p*
		Participate		No Participate				
		F	%	F	%	f	%	
1.	Positive	22	78.6	6	21.4	28	100	**0.002**
2.	Negative	8	36.4	14	63.6	22	100	

Based on Table 8, a cross tabulation between attitudes and community participation in the IPAL program, it is known that of the 28 respondents who had positive attitudes, as many as 22 respondents (78.6%) participated in the IPAL program and as many as 6 respondents (21.4%) did not participate in the IPAL program. Furthermore, of the 22 respondents who had a negative attitude, 8 respondents (36.4%) participated in the IPAL program and 14 respondents (63.6%) did not participate in the IPAL program.

Based on the results of the chi-square test in Table 4.8, the p value = 0.002 < 0.05, it is concluded that there is a significant relationship between attitudes and community participation in the Siboas Environment, Sihasto Village, Parlilitan District.

3. **Relationship between Economic Status and Community Participation in the IPAL Program**

Table 9. The Relationship between Economic Status and Community Participation in the IPAL Program in the Siboas Environment, Sihasto Village, Parlilitan District

No.	Economic Status	Community Participation in the IPAL Program				Total		*Sig-p*
		Participate		No Participate				
		F	%	F	%	f	%	
1.	Tall	20	76.9	6	23.1	26	100	**0.011**
2.	Low	10	41.7	14	58.3	24	100	

Based on Table 9, a cross tabulation between economic status and community participation in the IPAL program, it is known that of the 26 respondents who had high economic status, as many as 20 respondents (76.9%) participated in the IPAL program and as many as 6 respondents (23.1%) %) did not participate in the IPAL program. Furthermore, of the 24 respondents who had low economic status, 10 respondents (41.7%) participated in the IPAL program and 14 respondents (58.3%) did not participate in the IPAL program.

Based on the chi-square test results in Table 4.9, the p value = 0.011 < 0.05, it is concluded that there is a significant relationship between economic status and community participation in the Siboas Environment, Sihasto Village, Parlilitan District.

Discussion

The Relationship between Knowledge and Community Participation in the Ipal Program

Knowledge is information or information that a person knows or is aware of. In another sense, knowledge is the result of a person's knowledge of objects through their senses (eyes, nose, ears, etc.) regarding situations or events that they observe. Knowledge can also make a person have awareness so that a person will behave according to the knowledge they have. (Shaqiena, 2019).

Based on the results of the chi-square test in Table 4.8, the p value = 0.020 < 0.05, it is concluded that there is a significant relationship between knowledge and community participation in the Siboas Environment, Sihasto Village, Parlilitan District. This research is in line with research conducted by Amini in 2018 on Factors that Influence the Effectiveness of Communal Waste Water Treatment Plants (IPAL) in Depok District, Sleman, showing that 80% of IPALs are effective in treating BOD. The relationship between the level of knowledge and users of the WWTP and the effectiveness of the BOD shows a significant relationship (OR: 5.559; 7.714) while the relationship between the capacity design of the WWTP and the effectiveness of the BOD shows a weak relationship (R: 0.333). Conclusion: Factors that influence the effectiveness of IPAL are the level of knowledge and participation of IPAL users.

The Relationship between Attitudes and Community Participation in the IPAL Program

Based on the results of the chi-square test in Table 4.8, the p value = 0.002 < 0.05, it is concluded that there is a significant relationship between attitudes and community participation in the Siboas Environment, Sihasto Village, Parlilitan District. This research is in accordance with research conducted by Suherman in 2016 regarding the Relationship between the Level of Community Knowledge and Attitudes with the Availability of Waste Water Drainage Channels in Lekobalo Village, showing that there is a relationship between the level of community knowledge and the availability of waste water drainage channel (p value = 0.013). And there is a relationship between community attitudes and the availability of waste water disposal channels (p value = 0.000). Based on this research, it can be concluded that the level of knowledge and attitudes of the community is related to the availability of waste water disposal channels in Lekobalo Village.

Attitude is a person's closed response to certain stimulation or objects, which already involves the relevant opinion and emotional factors (happy-displeased, agree-disagree, good-bad, and so on). Which is manifested in the attitudes and behavior of health workers or other officials, who are the reference group for community behavior. Sometimes, even though someone knows and is capable of healthy behavior, they don't do it.

Relationship between Economic Status and Community Participation in the IPAL Program

Based on the chi-square test results in Table 4.9, the p value = 0.011 < 0.05, it is concluded that there is a significant relationship between economic status and community participation in the Siboas Environment, Sihasto Village, Parlilitan District. This research is in accordance with research conducted by Meliyanti in 2018 regarding Factors Associated with Household Wastewater Sewerage Ownership, showing that, from the results of the Chi-Square test, a p-value of 0.015 was obtained, meaning that there is a significant relationship between the respondent's income and ownership of household waste water drainage channels.

CONCLUSION

There is a relationship between knowledge and community participation in the Communal IPAL program in the Siboas Environment, Sihasto Village, Parlilitan District with a value of p = 0.020 < 0.05.There is a relationship between attitudes and community participation in the Communal IPAL program in the Communal Environment in the Siboas Environment, Sihasto Village, Parlilitan District with a value of p = 0.002 < 0.05. There is a relationship between economic status and community participation in the Communal IPAL program in the Siboas Environment, Sihasto Village, Parlilitan District with a value of p = 0.011 < 0.05. For Subdistricts and Heads of Community Self-Help Groups (KSM), it is hoped that this research can be used as input to the community regarding the communal Wastewater Treatment Plant program in the Siboas Environment, Sihasto Village, Parlilitan District 2021, such as: Increasing appropriate and clear education to the community about the benefits and advantages of the program WWTP in preventing disease and maintaining environmental health in the community. Supervise the IPAL building that has been created so that it functions well and smoothly, so that the community does not feel disadvantaged and is willing to participate in the IPAL program. It is hoped that this research can be used as input for students who will conduct further research on the relationship between predisposing factors and community participation in the Communal Waste Water Treatment Plant (IPAL) Program outside of the factors that have been researched.

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