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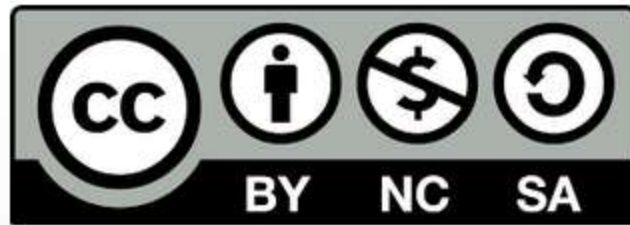
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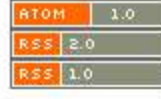
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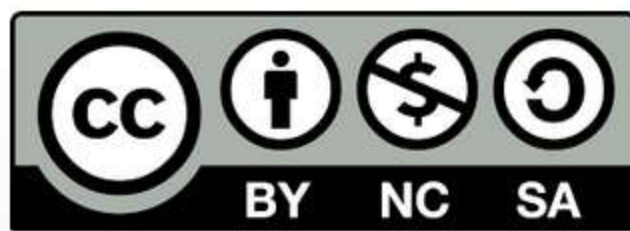
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## MODEL OF COMMUNITY-LED TOTAL SANITATION PILLAR ONE: OPEN DEFECATION FREE IN SAGULUNG SUBDISTRICT, BATAM CITY

Tita Widya Arindayu<sup>1</sup>, R. Azizah<sup>2\*\*</sup>, Juliana Jalaludin<sup>2,5</sup>, Arif Sumantri<sup>3</sup>, Shaharuddin Mohd Sham<sup>2,5</sup>, Lovetta Yatta Juanah<sup>4\*</sup>, Ahmadi Ahmadi<sup>6</sup>, Salsabila Al Firdausi<sup>2</sup>

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### Abstract

**Introduction:** Community-Led Total Sanitation (CLTS) is an effort by the government to improve public health. The main focus of pillar one is to stop open defecation. Sagulung Subdistrict has verified and non-verified ODF villages in their working area. This paper aims to create a CLTS model based on the pillar of one ODF in the Sagulung Subdistrict. **Methods:** This research used a mixed-method that combining qualitative and quantitative approaches. An amount of 90 families were chosen as respondents using a simple random sampling technique. Besides that, three programmers and five implementers from the government also became respondents. Data were analysed with a Chi-Square test and descriptive analysis. **Results and Discussion:** This research showed that ODF declaration and local policies were the aspects that had not been fulfilled to the maximum on CLTS pillar one in the Sugulung Subdistrict Government. Sungai Lekop Primary Health Care had not fully fulfilled three aspects: the concept, planning, and targets (advocated and local policies). As a Non-ODF village, Sungai Langkai primary health care did not fulfil the concept, planning, and target (certificate of the training program, advocated, declaration of ODF and local policies). **Conclusion:** Variables that have not been fulfilled optimally can be arranged as a recommendation model to successful ODF in Sagulung Subdistrict.

### Article Info

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**INTRODUCTION**

The joint WHO/UNICEF, Joint Monitoring Program (JMP) for Water and Sanitation, is officially affiliated by the United Nations tasked to provide global reports on the 6<sup>th</sup> Sustainable Development Goals for clean water and proper sanitation. More than 2.4 billion people worldwide do not have access to adequate sanitation (1). Based on the WHO report, 17% of the world’s population, or an estimated 1.1 billion people, had been still open defecation. Indonesia ranked second most found people defecating in open areas reached 12% after India’s first rank reached 58% (2). Indonesia Health Profile data in 2019 shows the number of Stop Open Defecation Free villages reached 57,935 out of a total of 83,441 (3). The behavior of open defecation can lead to environmental pollution and communicable disease (4). The transmission of diseases caused by a microorganism such as bacteria, viruses, or protozoa can be triggered by inadequate sanitation (5). Fecal coliform is a type of opportunistic pathogenic bacteria and is capable of causing diarrhea. These bacteria are present in human and mammalian feces and cannot breed in waste-contaminated waters (6). Water highly might be contaminated by pathogens that belonging fecal coliform while people were defecated in rivers or lakes. So, it requires regular microbial examination in water (7).

Health development is a part of the national development program implemented by the government, public, and private components to improve public health quality. The Indonesian Governments issued a national program called CLTS to improve the public health quality, which consists of 5 pillars, namely: 1. Stop Open Defecation; 2. Hand Washing with Soap and Running Water; 3. Management of Drinking Water and Household Food; 4. Household Waste Management; 5. Household Liquid Waste Management Water and Sanitation. The main focus of pillar one is to Stop Open Defecation, which is used to stop the transmission of human feces contamination in water, food, and soil. CLTS program oriented to change the community behavior using triggering methods, emphasising learning about their sanitation situation until they declare ODF (3).

CLTS evaluation by the Ministry of Health in 2018 stated that Riau Islands province ranked 26<sup>th</sup> nationally, including the province with the lowest ODF achievement with the percentage of villages as much as 56.73% (236 villages) and 13.94% ODF verified (58 villages). The population of the Riau Islands is concentrated in Batam city as the center of economic sectors.

ODF verified villages in Batam City as many as 12 out of 64, while 81% of villages still open defecation in 2019. Sagulung subdistrict has two statuses related to ODF verification, namely ODF verified villages and unverified ODF. ODF verified villages in the Sungai Lekop Primary Health Care. ODF unverified villages are located in the primary health care of Sungai Langkai, namely Trembesi Village, Sungai Pelunggut Village and Sungai Langkai Village. Implementation of CLTS in Sagulung Subdistrict shows several variables not achieved maximally, so it is necessary to create a model obtained from evaluating some of these variables. This study also analyse the programmer, implementers, recipients, then formulated a program recommendation model in the CLTS pillar one in Sagulung Subdistrict.

**METHODS**

The type of this study was observational with a quantitative approach. The study was conducted in Sagulung Subdistrict, Batam City, which consists of 2 working areas of primary health care, namely Sungai Langkai and Sungai Lekop. Respondents who participated consists of programmers, implementers, and recipients. The recipient was the Sagulung Subdistrict peoples, calculated based on the family number. A total sample of the recipient was calculated using a Simple Random Sampling technique by Lemeshow formula (8):

$$n = \frac{N \times Z_{1-\alpha/2}^2 \times p \times q}{d^2(N - 1) + Z_{1-\alpha/2}^2 \times p \times q}$$

The total sample as recipients was chosen as 90 families in Sagulung Subdistrict. It was distributed to 12 families in Sungai Lekop primary health care as an ODF and 78 families in Sungai Langkai primary health care as a Non-ODF. This study also involved eight people for informants consist of three programmers and five implementers.

Data were collected with in-depth interview techniques using questionnaires and interview guidelines. Variables measured in CLTS implementers were the system assessment, planning, implementation, and certification. Variables measured in recipients were the availability of land, support and motivation, monthly earnings, behavior of defecation, level of knowledge and presence of WUSAN (sanitation entrepreneurship). Variables questions developed from the guideline of the Decree of the Minister of Health of the Republic of Indonesia Number: 852/Menkes/SK/IX/2008 about National Strategy of Community-Led Total Sanitation and Regulation of Ministry of Health Republic Indonesia No.3/ MENKES/2014 about Community-Led Total Sanitation.

Data analysis techniques on a quantitative approach using IBM SPSS 2.1 software with Chi-Square test. Data analysis on qualitative approach in analysis using content analysis. Modeling was obtained from variables that have not been achieved to the maximum value in realizing CLTS pillar one.

**RESULTS**

**System Assessment, Program Planning, and Program Implementation in Programmer**

The accumulation scores of variable system assessment, planning program, and implementation program from program maker were classified as a less category shown in table 1.

**Table 1. Accumulation of Variable Score System Assessment, Program Planning, and Program Implementation in Programmer**

Variable	Scores	Category
<b>System Assessment</b>		
Availability of concept and planning of Stop Open Defecation Program	30 (less)	
The target of the Stop Open Defecation Program	30 (less)	Less
The Foundation of Stop Open Defecation Program Policy	150 (good)	
<b>Program Planning</b>		
Program Guide Availability	90 (enough)	
Availability of Funds	90 (enough)	Enough
<b>Program Implementation</b>		
Socialization of Stop Open Defecation Program	150 (good)	Enough
Advocation quality	90 (enough)	

There were written concepts and plannings, the target of program implementation due to the regulation, the absence of standard operating procedure, the budget was charged to the Batam City Annual Budget due to the lack of funding assistance from stakeholders. There was no advocacy to the private sector.

**System Assessment, Planning Program, Implementation Program, and Certification Program in Implementers**

The accumulation scores of variable system assessment, planning program, implementation program, and certification were classified as a suitable category shown in table 2. The planning program has included the availability of facilities and equipment. The implementation of the program has been done with mentoring activities. There was an unmet ODF declaration and no written policy on implementing pillar one of the CLTS program.

**Table 2. Accumulation of System Assessment Variable Scores, Planning Programs, Implementation Programs, and Certification Programs in Implementers**

Variable	Scores		
	Sagulung Subdistrict	Primary Health Care of Sungai Langkai	Primary Health Care of Sungai Lekop
<b>System Assessment</b>			
Availability of concept and planning of Stop Open Defecation Program	-	30 (less)	30 (less)
Stop Open Defecation Program Goals	-	30 (less)	30 (less)
Policy Foundation of Stop Open Defecation Program	-	150 (good)	150 (good)
<b>Category</b>	-	<b>less</b>	<b>less</b>
<b>Program Planning</b>			
Human Resource Readiness	-	90 (enough)	150 (good)
Program Guide Availability	-	150 (good)	150 (good)
Availability of facilities, and equipment	150 (good)	150 (good)	150 (good)
Availability of information media	-	150 (good)	150 (good)
<b>Category</b>	<b>good</b>	<b>enough</b>	<b>good</b>
<b>Program Implementation</b>			
Triggering Quality	-	150 (Good)	150 (Good)
Quality Mentoring	150 (Good)	150 (Good)	150 (Good)
Quality Advocacy	-	30 (Less)	30 (Less)
<b>Category</b>	<b>Good</b>	<b>Enough</b>	<b>Enough</b>
<b>Program Certification</b>			
Access Healthy Latrines	-	150 (Good)	150 (Good)
Stop Open Defecation Behavior	-	150 (Good)	150 (Good)
ODF Declaration	90 (Enough)	30 (Less)	150 (Good)
Resulting policy	30 (Less)	30 (Less)	30 (Less)
<b>Category</b>	<b>Enough</b>	<b>Enough</b>	<b>Enough</b>

The Sungai Lekop primary health care as an ODF has not fully fulfilled the concept, planning, no advocacy with the private sector, and has not formulated the local policies. The Sungai Langkai primary health care as a Non-ODF has not fully fulfilled the concept, planning, the readiness of certified human resources on the CLTS training program, no advocacy with the private sectors, no declaration of ODF and local policies.

**Program Improvement to Recipients**

The accumulation scores of a program improvement variable to recipients were viewed in table 3. The results showed no significant correlation between land availability, motivational support, monthly income, behavior of defecating, level of knowledge, and availability of village sanitation entrepreneurs with the

ODF status of the respondents. In general, most Non-ODF areas need to be improved both in terms of land availability, motivational support, monthly income, and level of knowledge.

**Table 3. Accumulation of Program Improvement Variable Scores in Recipients**

Improvement Program Variables	Area				p-value
	ODF (Primary Health Care of Sungai Lekop)		Non-ODF (Primary Health Care of Sungai Langkai)		
	n	%	n	%	
<b>Availability of land</b>					
Yes	5	42	20	26	0.302
No	7	58	58	74	
<b>Support and Motivation</b>					
Yes	11	92	65	83	0.683
No	1	8	13	17	
<b>Monthly Earnings</b>					
≥ 3.500.000	9	75	49	63	0.527
< 3.500.000	3	25	29	37	
<b>Behavior of Defecating</b>					
In Healthy Latrine	4	33	28	36	1.000
Not in Healthy Latrine	8	64	50	64	
<b>Level of Knowledge</b>					
Good	12	100	74	95	1.000
Bad	0	0	4	5	
<b>Presence of WUSAN</b>					
Yes	1	8	22	28	0.284
No	11	92	56	72	

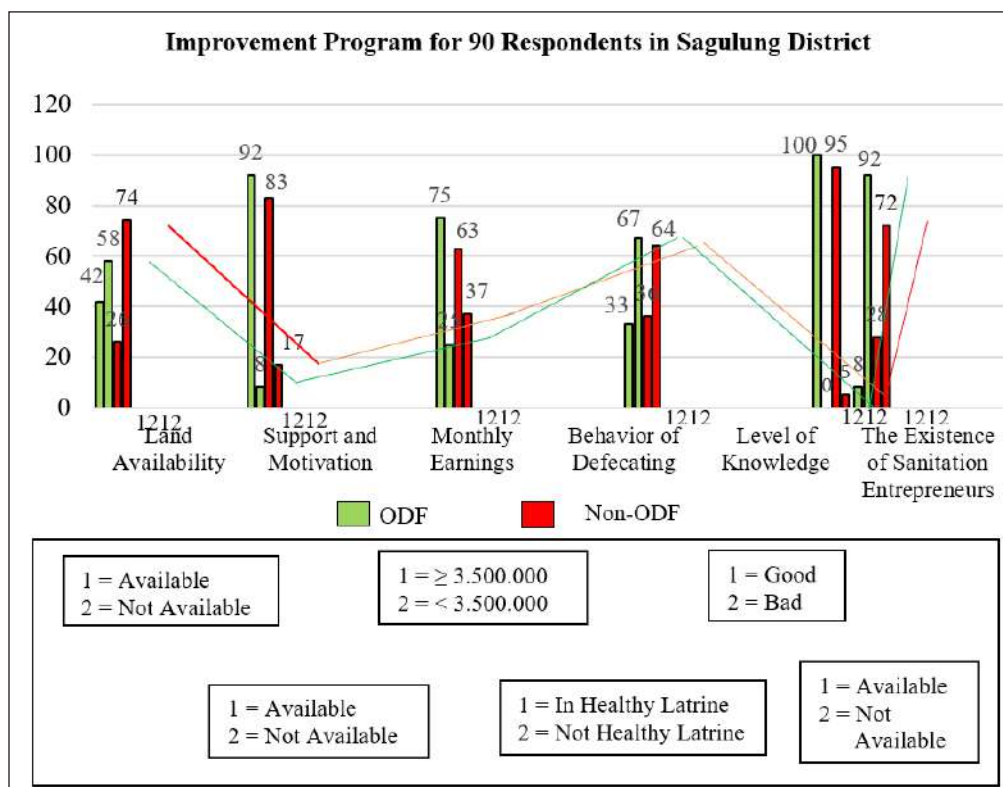
Graph of improvement program at the Sungai Lekop (ODF) and Sungai Langkai (Non-ODF) can be seen in Figure 1.

It showed that improvement programs in the recipients have no significant difference in results showing diagrams that tend to be the same. The bar chart shows that nothing tends to be very high or very low, indicating similarities between people both in ODF and Non-ODF. Moreover, Figure 1 also showed that there were still people who have open defecation behavior in the ODF area, as well as the existence of sanitation entrepreneurs in the ODF area is still very little that is 92%.

**Model of the Pillar One for CLTS Program in Sagulung Subdistrict**

The national CLTS program was based on Regulation of the Minister of Health Republic Indonesia number 3 of 2014 on CLTS. The minister of health regulation becomes the basis of local rules to actualize CLTS programs. The Governor of Riau Islands issued Decree No. 0168/106/SET concerning the CLTS Program's Implementation. Simultaneously, regulations in Batam city have not been found related to the implementation of the CLTS program.

As a program maker, Batam City Health Office related to formulating concepts and planning, targets, formulating standard operating procedure (SOP) and policy foundations, advocating with other stakeholders, and supervising ODF declarations. Sagulung Sub-District Government as an implementer can announce the ODF declaration in the Batam City Health Office; also formulate a written policy. Sungai Lekop primary health care, whose working area with ODF condition still has to



**Figure 1. Graph of Improvement Program at the Primary Health Care of Sungai Lekop (ODF) and Primary Health Care of Sungai Langkai (Non-ODF)**



formulate the concept of planning and targets, advocacy with other agencies, formulated the local policies and carried out the monitoring and evaluation from the CLTS program. Sungai Langkai primary health care stated that several Non-ODF villages in their working areas as soon as possible to formulate the concept of planning and targets, advocacy with other agencies, training officers, conducting monitoring evaluation CLTS program, ODF declarations, created local policies.

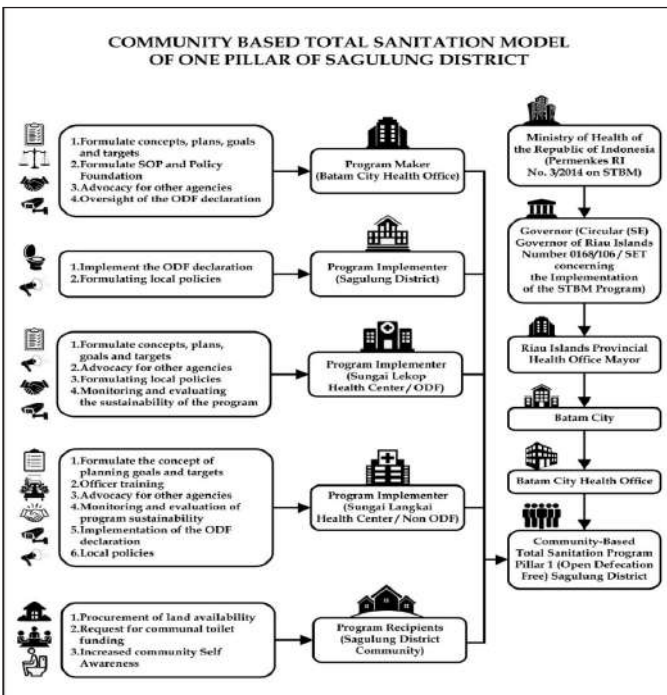


Figure 2. Model Community-Led Total Sanitation Pillar One District Sagulung

Program recipients had to support the program implementer to actualize the program activities, such as proposing communal latrines construction and increasing family awareness. It would increase public awareness to support the CLTS program in Sagulung Subdistrict successfully. The implementation of the CLTS pillar one must be well-coordinated between program makers, program implementers, and program recipients to achieve the objectives.

## DISCUSSION

### System Assessment, Program Planning, and Program Implementation in Programmer

A study conducted in Nagekeo District stated that advocacy to the government or other agencies in developing a joint commitment to implement the village sanitation development is essential realizing ODF village (9). This was in line with the study conducted in Probolinggo District, which showed the officers need cross-sector and cross-program advocacy after triggering the community to prevent falls into the wrong category (10). The socialization and sanitation support

both from local governments and private agencies in several years would drive the village into ODF, based on a study conducted in the Hattimuda region (11). The advocacy to private agencies is needed to support pillar one program in Sagulung Subdistrict. Implementing CLTS can be influenced by exploring a strong coalition among the community, local government, and CLTS facilitators (12).

A study in Demak District stated that obscure policy objectives could make a difference in interpreting the policy and lead to a conflict between implementers (13). Concept and planning are the primary determinants to achieve the program objectives, so it needs to write clearly to implement the CLTS pillar one program in Sagulung Subdistrict. The program's implementation is close to related to the availability of SOP and guidebooks. It will make the supervision of the ODF program's implementation is carried out efficiently (14). Operational capability in implementing programs following the program's objectives can make a program effective (15).

### System Assessment, Planning Program, Implementation Program, and Certification in Implementers

The actualisation progress of the CLTS program can be known through detailed recording and reporting (16). Regular supervision is needed to evaluate the program implementation and solve the sanitation problems (17). A lack of facilities and infrastructure constraints of the sanitation will make the program implementation can not well done.

The study in Nagekeo District stated that the facilitators of CLTS need to get training in the implementation of the congregation-led total sanitation program (9). According to a study in Muaro Jambi District, Sumedang and Lombok Barat stated that the facilitator had not received training in implementing the ODF program, which is proven no training certificate (18). Human resources readiness training needs to improve skills capabilities in implementing and monitoring the CLTS pillar one program (19). It might encourage the community to change the defecate behavior in realizing ODF. Also, the ODF declaration is helpful to motivate the Non-ODF villages to implement the program and formulate the local policies to support the achievement of the CLTS pillar one program.

### Program Improvement Program Recipients

In Ampelu Village, Batanghari District, the study stated that the community often defecates behavior in the river because they did not have latrines at home, and

it becomes the constraints factors to implements CLTS (20). Another study in Muaro Jambi District, Sumedang, and West Lombok stated that open defecates behavior carelessly was still conducted even after the socialisation program because there no available land to build latrines with septic tanks (16). Besides that, a study in Nadowli-Kaleo District stated that low income is one factor that hinders the maintenance of restrooms in the household and sustainable innovation of ODF (21). A household with inadequate latrines causes feces' disposal directly into the environment, which causes diarrhea (22).

There was a relationship between knowledge and ODF status based on a study in Semarang (23). A lack of public knowledge about health, a minimum infrastructure, and inadequate supervision inhibit the ODF implementation (24). The incredible health benefits in the village will be obtained with high initial social capital in building latrines and reducing open defecation (25).

Based on Indonesian Statistic Data, there were only 39% of households that using healthy latrines nationally. A study in Sukamurni Village showed that most families still open defecate in the river because they did not have latrines (26). It was closed to the land's community availability, the socialisation to increase public knowledge and awareness of defecation behavior in healthy latrines. The community's inability to have latrines to support the ODF program can be caused by the local community's economic level (27). People who implemented the ODF are indicators of the CLTS success compared with the number of latrines built and funds that have been used (28). Awareness of behaving defecate in latrines will certainly help realize the village with ODF status so that the program's objectives can be achieved. The basis for attaining the CLTS objectives is a sense of cohesion and inclusion, trust, solidarity, and a high ambition to reduce indiscriminate babble behavior (29).

#### **Model of the CLTS Pillar One Program in Sagulung Subdistrict**

CLTS is the most widely used approach in the community for sanitation facilities. The unattainable CLTS pillars can increase the environmental-based diseases (30). Diarrheal illness in infants/children is caused by contaminated micro bacteria that enters the digestive system through clean water sources, drinking water, washing, latrines, and families who do not have latrines (31). Research in Bangli District stated that the CLTS model in pillar one is expected to optimize the program achievement, namely program target setting, advocacy,

program policy preparation, identification, and delivery of financing both government and non-government (20). The CLTS program could be maintained by combining efforts to overcome household barriers in building quality latrines and strengthening previous recommendations stating that CLTS is not compliant with regulations (32). CLTS depends on changes in behavior and community commitment to discipline, not to open defecation (33).

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#### **CONCLUSION**

An essential fundamental element is formulating the planning concept and target goals of the program. It becomes the basis in the equalization of perception between program makers and program implementers, but performance remains based on the CLTS government's regulations. Still, there needs to be an increase in land availability, support and motivation, household income, defecation behavior, level of knowledge, and the existence of sanitation entrepreneurship. There is no difference between ODF and Non-ODF villages. Community-Led Total Sanitation pillar one Sagulung subdistrict can be an input aspect that needs to be done immediately by program makers, program implementers, and program recipients.

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