Community Led Total Sanitation (CLTS) in Cikupa Village and Teluknaga Village in Tangerang, Indonesia

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ABSTRACT

Diarrhea incidence in Indonesia is 423 per 1000 population in 2006. Increased diarrhea cases in one area can be controlled by sanitation approach. One of the Ministry of Health programs to improve Indonesian health status is Community Led Total Sanitation (CLTS). Teluknaga and Cikupa Health Centers have differences in the number of diarrhea cases. In addition and geographical conditions. This study used observational quantitative study with cross sectional study design. In this study, there was no intervention. Study sample consisted of 200 respondents (100 respondents in Cikupa village and 100 respondents in Teluknaga village). This study used random sampling. One household will be chosen by one respondent to be interviewed. Analysis of the data used independent t-test. The results showed that mean of CLTS for the Teluknaga village and variable was -32.50 with standard deviation was 0.383. While, the mean of CLTS for Cikupa village was 44.14 with a standard deviation was 0.398. According to Mann Whitney test above showed that p-value was 0.000 <α = 0.05. It meant that there was significantly different in CLTS between Cikupa and Teluknaga village, Tangerang. Implementation of CLTS in urban and rural areas has been still different. However although there were differences, it has been still a big and complex challenges. In addition, required varied methods, tools and approaches. Latrine subsidy in households was long-term production by government support.

Keywords: Sanitation, Diarrhea, CLTS, Environmental, Indonesia

Introduction

Sanitation development challenges in Indonesia are community social culture and behavior. They are accustomed to defecating in any place, especially to water bodies which are also used for washing, bathing and drinking water. In addition poor hygiene and sanitation have been still much. Study by The Indonesia Sanitation Sector Development Program (ISSDP) in 2006 showed that 47% of people behave defecation into rivers, fields, ponds, gardens and outdoors.

WHO states that waterborne disease deaths reach 3,400,000 people per year, and diarrhea is the biggest cause of death, 1,400,000 people per year. The cause of death is poor sanitation and water quality. Diarrhea is an endemic disease and also a potential outbreak disease in Indonesia that often causes death. In 2015 there were 18 outbreaks of diarrhea that spread in 11 provinces, 18 districts/cities with a total sufferers was 1,213 people and 30 deaths (CFR 2.447%)¹. Based on cumulative data from 43 Primary Health Care in Tangerang District, 2014, it was found that the percentage of diarrhea cases of all ages increased since 2011 to 2014. The highest cases of diarrhea in 2011 were 40.19%, in 2012 cases increased to be 42.67%, in 2013 increased to 43.72% cases and in 2014 also increased to be 51.34% cases².

Increased diarrhea cases in one area can be controlled by sanitation approach. One of the Ministry of Health programs to improve Indonesian health status is Community Led Total Sanitation (CLTS). CLTS is a government program to strengthen efforts to accostume clean and healthy lives, prevent the spread of environment-based diseases, improve community capacity, and implement government commitments to improve access of drinking water and basic sanitation sustainably to achieve SDGs³.

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The CLTS National Strategy is a reference for planning, implementation, monitoring and evaluation related to CLTS. Health sanitation is closely related to community culture. In an effort to foster community participation must be considered also the community socio-cultural conditions. To involve the community in development efforts, especially in the health sector that will bring better results is if the process use educative approach that is trying to raise awareness in the community through increasing knowledge by considering local social culture.

Ministry of Health Indonesia stated that the lowest percentage who implemented CLTS was DKI Jakarta Province 1.87% and Banten Province 24.44%, while the highest percentage who implemented CLTS were Special Region of Yogyakarta Province 93.84%\(^4\).

Teluknaga and Cikupa Primary Health Care are located in Tangerang, Banten Province. Primary Health Care Teluknaga is a primary health care that has an ISO certificate and has been cases of diarrhea that fall into the top 10 diseases in the primary health care area, while the Cikupa is a primary health care that did not have an ISO certificate and for cases of diarrhea does not fall into the top 10 diseases. In addition, based on geographical conditions, Cikupa Village is an administrative area, close to industries, factories, shops and roadside resident, the condition is crowded and has sufficient facilities and infrastructure. Meanwhile, Teluknaga Village has a population whose livelihoods are mostly fishermen, located on the coast, and the area has many fish ponds. This differences is predicted due to the house and surrounding environment has not been health requirements, no sewerage, and littering behavior and communities PHBS has been still lacking\(^2\). Based on these problems, important to study about Community Led Total Sanitation (CLTS) Differences between Cikupa and Teluknaga village.

**Methodology**

This study was used observational quantitative study with cross sectional study design. In this study, there was no intervention. Study sample consisted of 200 respondents, 100 respondents in Cikupa village and 100 respondents in Teluknaga village. Sample collected used random sampling. Each family head who was recorded at the household where the data was collected will be chosen one respondent. The respondent criteria were sought as a family decision maker, a husband or wife. Then, the respondent will be given a questionnaire on community led total sanitation that will cover five pillars. Data analysis used an independent t-test analysis to determine CLTS differences between Cikupa and Teluknaga village.

**Result**

Description of 5 pillars CLTS implementation in Cikupa and Teluknaga Village as bellow:

**Table 1: Description of CLTS in Cikupa dan Teluknaga Village, Tanggerang (respondents)**

<table>
<thead>
<tr>
<th>CLTS Implementation</th>
<th>Dwelling</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cikupa</td>
<td>Teluknaga</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Open defecation free (ODF)</td>
<td>50</td>
<td>50</td>
<td>9</td>
</tr>
<tr>
<td>Hand washing with soap</td>
<td>79</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Household drinking water and food</td>
<td>42</td>
<td>58</td>
<td>26</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safekeeping of household waste</td>
<td>33</td>
<td>67</td>
<td>16</td>
</tr>
<tr>
<td>Safekeeping of household liquid</td>
<td>7</td>
<td>93</td>
<td>3</td>
</tr>
</tbody>
</table>

According to Tabel 1, the highest proportion of handwashing with Soap in Cikupa Village was good. While in the Teluknaga Village, the highest proportion of household drinking water and food management properly was good.

**Table 2: Description of Average CLTS in Cikupa dan Teluknaga Village, Tanggerang**

<table>
<thead>
<tr>
<th>Dwelling</th>
<th>N</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>STBM</td>
<td>Teluknaga Village</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Cikupa Village</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table 2 showed that the mean of CLTS for the Teluknaga village variable was -32.50 with a standard deviation was 0.383. While, the mean of CLTS for Cikupa village was 44.14 with a standard deviation was 0.398.

Furthermore, it was conducted normality test first for bivariate analysis. Results of the normality test showed that distribution was not normal with p-value 0.000 <\(\alpha\) = 0.05. Then, non-parametric statistical tests were used using Mann-Whitney U.
Table 3: CLTS Differences in Cikupa dan Teluknaga Village, Tanggerang

<table>
<thead>
<tr>
<th>Dwelling</th>
<th>N</th>
<th>Mean</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>STBM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teluknaga Village</td>
<td>100</td>
<td>-11.640</td>
<td>0.000</td>
<td>-12.729 - -10.551</td>
</tr>
<tr>
<td>Cikupa Village</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Mann Whitney test above showed that p-value was 0.000 <α = 0.05. It means significantly different of CLTS between Cikupa and Teluknaga Village.

Discussion

Incident cases of diarrhea in Cikupa Village were lower than Teluknaga village. In Cikupa Village, diarrhea cases were not included in the top 10 diseases however in Teluknaga Village, cases of diarrhea had been still in the top 10 diseases. Then, study result showed that there were differences in CLTS between Cikupa Village (low diarrhea cases) and Teluknaga village (high diarrhea cases). Study was conducted in Nyando in 2008, where diarrheal disease was found to be a major cause of morbidity and mortality among children under five, especially in rural and suburban communities in the district. Thus, diarrhea contributes 87% and 48% for child morbidity and mortality(5).

Requirement of sewage disposal that met to health rules were not polluting the soil surface, do not contaminate surface water, do not pollute soil water, dirt could not be open so that it could be used as a vector for laying eggs and breeding(6). Factors that encourage indiscriminate disposal of fecal activities include low socio-economic levels, insufficient knowledge in environmental health, and poor habits in disposal of feces that are passed down from generation to generation. Build latrines depending on i) pre-existing social context factors, ii) socially intensive processes initiated by CLTS, iii) CLTS fosters the confidence to be able to build and rebuild toilets, and iv) CLTS communicates its benefits to health latrine(7). When the community has succeeded in making changes and declares its environment free of open defecation free (ODF), the further challenge is to maintain these conditions so as to ensure that no single member of the community returns to practice open defecation free (ODF)(8).

According to observations, there has been still many respondents who behave less for pillars 1 to stop defecate at any place. It was because the community behavior was difficult to change, it seen from the community who already have latrines but still have defecation behavior in the river. This was in line with study stated that CLTS was an approach for long-term problems for a sustainable national planning framework with the implementation of CLTS promotion in schools, preparing cadres who follow CLTS, the implementing CLTS’s cost included facilitation and installation of latrines cost by own resources, CLTS advocacy in churches and mosques, motivating children as a key role in using latrines in their homes(9).

Removing human waste (feces and urine) properly and maintaining personal hygiene could maintain health. If waste was not maintained and disposed incorrectly and unsafe, it could be affected to human health and caused serious diseases such as diarrhea, dysentery, typhoid, cholera and other types of infectious diseases. These health problems could be prevented if more effort was conducted for changes personal hygiene behaviors, such as handwashing properly, waste disposed properly, and using clean toilets with easy access to clean water sources(10).

Based on pillar 2 about handwashing with soap showed that behavior of handwashing with soap in Teluknaga village was lower than Cikupa village. Based on the observations to the respondents who have lack behavior of handwashing with soap, they have only washing hands with water without soap and lacking of respondent’s knowledge regarding to important times for washing hands. Washing hands with water was more less effective in removing diseased germs from the hands than washing hands with soap. Hand washing using soap was one of the most effective and inexpensive ways to prevent diarrheal disease which mostly causes death in children. Washing hands with soap after using the toilet or helping children with bowel movements and before handling food could reduce the level of diarrhea, cholera and dysentery about 48 -59%(11).

Household drinking water and food management which was to be the pillar 3 of CLTS showed that the proportion of poor behavior in Cikupa village was 58% and the in Teluknaga village was 74%. Food must be
managed well and properly in order to prevented health problems and benefit for body. A good way to manage food was by applying the principles of food hygiene and sanitation. Household food management, although in small scale or on a household scale must also applying the food principles of sanitation. A good hygiene sanitation principles included sorted food ingredients, stored food ingredients, processed food, stored cooked food, transported food, served food\(^\text{(3)}\).

Safekeeping of household waste which was to be pillar 4 of CLTS showed that the proportion of lack behavior in Cikupa village was 67% and in the Teluknaga village was 84%. Based on observations, it showed that both of two villages there have not been sorting organic and inorganic waste and did not dispose of garbage every day. Still found trash around the river and gardens proved that people’s awareness have been still lack for littering impact.

Waste was a source of disease and a breeding for disease vectors such as flies, mosquitoes, rats, cockroaches. Garbage could be pollute the soil also and caused comfort and aesthetic disturbances such as unpleasant odors and unsightly views. Therefore waste management was very important to prevent disease transmission. Trash must be available, trash must be collected every day and disposed of in temporary shelters. If it was not reached by the service of garbage disposal to the final shelter, it could be carried out by eliminating the waste by stockpiled or burned\(^\text{(12)}\).

Household liquid waste management (pillar 5) showed that the proportion was poor in the Cikupa village (93%) and Teluknaga village was 97%. Observations showed that in both village, it has been still poor for safekeeping household liquid waste. It seen from inundated and uncovered drains in almost these villages. Stagnant liquid waste could be a disease vectors source, including public faucets or lavatories. Domestic liquid waste must be disposed properly following to appropriate standards of waste disposal. Domestic liquid waste usually was not an extreme waste hazard to the environment except it was disposed incorrectly that could be impacted to surface water or shallow ground water.

The last and very important step in the waste management process was disposal that must be carried out in an eco-freindly. Rwanda city that liquid waste management was company’s responsibility, however the government was also developing guidelines on how disposal activities should be carried out. This study stated that “Every liquid waste, especially from hospitals, clinics, industries and any other hazardous liquid waste must be collected, cared for and changed in a way that does not reduce the environment to prevent, eliminate or reduce adverse effects on human health, resources nature, flora and fauna\(^\text{(13)}\).

The traditional approach to rural sanitation is based on two assumptions. The first assumption is that people do not know about sanitation and hygiene, but if they are educated they will change their behavior. The second assumption is that people will use the toilet if they are given assistance to build it. However, these two assumptions are often proven wrong. Research shows that knowledge of health risks associated with poor sanitation does not always trigger behavior change. Furthermore, the proportion of latrines built with subsidies has never been used but as storage rooms, animal shelters. The traditional approach also focuses on individual households rather than encouraging the whole community to take collective action to clean the environment\(^\text{(14)(15)(16)}\). Interventions focused on clean water, sanitation and hygiene have been shown to have an impact on the incidence of diarrhea from many studies conducted\(^\text{(17)}\).

**Conclusion**

Implementation of CLTS in urban and rural areas has been still different. However although there were differences, it has been still a big and complex challenges. In addition, required varied methods, tools and approaches. Latrine subsidy in households was long-term production by government support. Thus, the problem of this study was people behavior who quite difficult to change in implementing CLTS.

**Competing Interest:** This research is part of Ministry of Research Technology and Higher Education (RISTEKDIKTI) Indonesian’s funding, thus, there is no competition in conducting this research.

**Ethical Clearance:** The study was approved by the Ministry of Research Technology and Higher Education (RISTEKDIKTI) Indonesian

**Source of Funding:** This research is Ministry of Research Technology and Higher Education (RISTEKDIKTI) Indonesian’s funding.
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