

Socio-Economy Study on Simple Healthy Septic Tank Provision in Simokerto and Kenjeran Districts, Surabaya City

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ABSTRACT

Surabaya City Mayor Regulation Number 115 of 2022 has regulated the Implementation of Latrine Development in the City of Surabaya as an effort to realize the City of Surabaya Open Defecation Free City in 2023. The development of healthy latrines is prioritized for low-income people who do not have latrines. The purpose of this research is to find out responses from the community regarding the development of healthy latrines based on characteristics and financial conditions. In terms of internal community factors, the willingness of the community to participate in counseling shows the community's interest in learning about environmental sanitation issues. However, there is a problem with limited funding sources for routine desludging activities. From the results of the questionnaire to 54 recipients of healthy latrines, the following conclusions are 5.56% of people who still practice open defecation in the study area even though healthy latrines are available and 11.2% of the people in the study area demonstrated the ability to have individual healthy latrines and manage and maintain septic tanks.

KEYWORDS: Community, Healthy Latrines, Kenjeran District, Low Income Society, ODF, Simokerto District.

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1. INTRODUCTION

In an effort to create a City of Surabaya Free from Open Defecation, a Surabaya Mayor Regulation was stipulated Number 115 of 2022 concerning the Second Amendment to Surabaya Mayor Regulation Number 14 of 2019 concerning Implementation of Latrine Construction in the City of Surabaya. Latrine construction work is prioritized for low-income communities who are categorized as residents who are not interested due to limited economic factors, and also no land. The study areas in this research are Sidodadi Village, Tambakrejo Village, and Simolawang Village in Simokerto District which are located near the river as well as Tanah Kali Kedinding Village and Bulak Banteng Village in Kenjeran District which have healthy latrine facilities by APPSANI and WVI because there are still people who have not have healthy latrines.

Based on the description above, domestic wastewater treatment and sanitation office in the city of Surabaya are working towards achieving the target of 100% free of open defecation by 2023, but the choice of latrine technology used still needs to be analyzed for its feasibility based on community participation aspects and financial aspects such as capacity of the community as a consideration in planning and further development activities. Unhealthy housing conditions in Surabaya are influenced by factors such as knowledge factors and environmental conditions that are not possible (Sulistyorini & Melaniani, 2020). The purpose of this study is:

1. Assess the feasibility of procuring healthy latrines based on the aspect of community participation in participating in building and managing healthy latrines as actors of healthy living;
2. Assess the feasibility of procuring healthy latrines based on financial aspects related to the need for investment and operational costs.

2. LITERATURE REVIEW

Community-Based Total Sanitation

Open Defecation is an act of disposing if feces in forests, rivers, beaches, or other open areas and allowed to spread contaminating environment, soil, air and water (WHO, 2019). Community-Based Total Sanitation (STBM) is an approach to changing hygienic and sanitary behavior through community empowerment by means of triggering. The implementation of STBM shows that there is a difference between people's behavior after ODF becomes more aware of environmental cleanliness and people who are not yet ODF and not all people can get used to ODF due to several factors, namely the culture and mindset of the community (Azzarrah & Kurniawan, 2021). Furthermore, there is the 5 pillars of STBM which are aimed at breaking the chain of transmission of disease and poisoning consist of the following behaviors (Peraturan Menteri Kesehatan, 2014) are:

1. Stop Open Defecation;
2. Wash hands with soap;
3. Management of drinking water and household food;
4. Securing household waste;

5. Securing household liquid waste.

While the people who practice open defecation think that latrines are expensive. So that the obstacles experienced by residents who have not had a latrine so far are the lack of funds to build a latrine and limited land (E. S. Soedjono & Arumsari, 2014). High participation of women in the healthy latrine program is due to factors such as lack of latrines, domestic work, time constraints, concerns about disease transmission, embarrassment, and potential sexual harassment (Desmaisi et al., 2022). The logistic regression model correctly predicted 94.6% of the conditions in the Batam City hinterland area, suggesting a need for community empowerment and collaboration between health and creative work programs (Oktarizal et al., 2022).

Sanitation Entrepreneur

Sanitation entrepreneur who works together with The Surabaya City Environment Office are APPSANI (Association of Indonesian Sanitation Management and Empowerment) and WVI (Wahana Visi Indonesia). The existence of APPSANI in the city of Surabaya has helped many residents who want to build healthy latrines but are hindered by funding sources, so APPSANI provides a fee program by installments. Although WVI is in sanitation as a sanitation agent/cadre who is a sanitation entrepreneur who helps entrepreneurs in marketing healthy latrine products to the public. WVI in collaboration with the Airlangga University Faculty of Public Health has implemented a healthy latrines program in the city of Surabaya, especially in the assisted subdistricts, namely Simokerto District and Kenjeran District. These healthy latrines program is a manifestation of the open defecation-free city of Surabaya.

3. METHODS

Primary Data Collection

Primary data collection was obtained through observation/survey of existing conditions in the field, direct interviews and questionnaires with respondents, and documentation of the existing conditions of the research object. Interviews were conducted with respondents, which is the people in the sub-district or study area. Respondents who were interviewed were beneficiary people who had built healthy latrines from the ODF program in Surabaya City by Wahana Visi Indonesia.

Secondary Data Collection

Secondary data collection is in the form of data related to wastewater treatment, especially services for defecation facilities/facilities. Secondary data is in the form of documents or written reports obtained from related government agencies, such Public Health Office, Environmental Office, Simokerto District Office, Kenjeran District Office

4. RESULTS

The Characteristic of Study Area

Surabaya City is the capital city of East Java which has 31 Districts and 154 Villages (Badan Pusat Statistik (BPS), 2014). The existing condition of healthy latrines that have

been built in the Surabaya City ODF program is shown in Figure 1 and the number of recipients of healthy latrines is shown in Table 1.



FIGURE 1. Existing Healthy Latrines; (a) Toilets, (b) Septic Tank Location)



FIGURE 2. Existing Healthy Latrines; (c) Air Pipes

TABLE 1. Number of Beneficiary Respondents

No	Village Name	Number of Household	Percentage	Number of Respondents
1	Sidodadi (RW 2, RW 3, RW 6, RW 7)	122	35%	19
2	Tambakrejo (RW 12, RW 13, RW 14)	72	21%	11
3	Simolawang (RW 1, RW 2, RW 3)	30	9%	5
4	Tanah Kali Kedinding (RW 12, RW 13, RW 14)	98	28%	15
5	Bulak Banteng (RW 2, RW 3, RW 8)	30	9%	5
Total		352	100%	54

The Characteristic of Respondents

The total number of respondents is 54 respondents from the beneficiary community (healthy latrines). The background factors for a person/society to be able to play a role in the development process and other matters in order to succeed in a target/goal to be achieved can be sourced from the internal and external environment, but the way of triggering and persuasive ways/inviting individuals to increase self-awareness is different.

Profession Type

Respondent's types of work were grouped into 4 job options are civil servants, private workers, entrepreneurs, and housewives. The characteristics of respondents in the form of level of education is one of the factors that influence mindsets, attitudes, and actions. Community environmental sanitation behavior is influenced by knowledge of environmental health, because knowledge is a dominant factor that is very important for the formation of one's actions (Chadijah et al., 2014). CLTS participation in Mozambique is associated with social context factors and psychosocial determinants, which influence the probability of latrine ownership (Harter et al., 2018).

Based on the survey results showed that of the 54 respondents, the majority worked as entrepreneurs who were selling snacks in front of the house such as stalls, as well as selling at the market with the last education being junior high school and equivalent. There are 50% of respondents who have jobs as entrepreneurs, then 37% of respondents are housewives. Based on the graph in Table 2, the highest monthly income for beneficiaries is in the range of Rp.1,000,000 – Rp. 2,000,000, but with these income costs, some respondents feel that they are not sufficient to meet their daily needs. (Ladiyance & Yuliana, 2014) said that income is closely related to the economic capacity of the community because the higher the economic capacity, the higher the individual's ability and opportunity to pay.

Home Ownership Status

In addition to economic factors, home ownership status influences people's awareness of owning healthy latrines. The things that underlie people who don't have family latrines are low socio-economic conditions and limited land in their house. Differences in people's behavior arise due to a lack of good awareness in disposing of feces or feces using the family toilet (WHO, 2019). The survey results show that 44.44% of the respondents live in rented house and 33.33% of the respondents live in a house owned by their parents/family, the other 22.22% of the respondents live in their own house.

Community Participation Aspect Analysis

In implementing the provision of healthy latrines is not easy, because it involves community participation which is very closely related to behavior, economic level, culture, and education. So that in the aspect of community participation in the provision of healthy latrines in the city of Surabaya, the analysis is carried out based on understanding knowledge, maintenance and management behavior and the willingness of beneficiaries to start getting used to defecating in healthy latrines. Besides being based on the 5 main pillars of STBM, the habit of healthy living, I also want to improve the healthy life of the beneficiaries.

Environmental Sanitation Behavior

There are 81% of respondents already have their own toilet, 24.07% of respondents use public latrines/WC sharing with free of charge, while 9.26% of respondents use shared

latrines/WC by paying for maintenance, another 1.85% of respondents use latrines/WC belongs to a neighbor who is the owner of a rented house. Building healthy latrines for individuals who are not on their own land is an obstacle because they will not feel concerned about the environment around the land or the house whether there will be healthy latrines (E. Soedjono et al., 2019)

Furthermore, there are still 9.26% of respondents who use floating latrines/WCs above ponds/streams and 90.74% of respondents are used to using latrines/WC with drainpipes. However, 95.92% of respondents still channeled the sewer pipe from the latrine/WC to the gutter/ditch/river and 4.08% of respondents who already had their own toilet channeled their feces into their own septic tank. All respondents (100%) knew that they had used a type of goose neck toilet, but as many as 7.4% of housewife respondents and 11.2% of household heads did not want to know and did not know the process of making a septic tank.

Knowledge of Environmental Sanitation

95.92% of respondents still distribute the sewer pipe from the latrine/WC to the gutter/ditch/river. They do this because it is a common thing in their environment and consider the river/gutter to be a facility that can be used because of the smooth flow of water and easy access to disposal. So, this shows that their knowledge about environmental sanitation is still lacking. However, 68.5% of respondents admitted that they had participated in counseling/discussions and had known that open defecation behavior could pollute the environment which could cause disease in the community around the environment.

The community's willingness was shown by 94.4% of respondents agreeing to build healthy latrines at their homes or in public toilets because they received facilities from the government, while 5.56% of respondents agreed because of their own wishes. Furthermore, for evidence of beneficiary responsibility as healthy living actors, namely their willingness to get used to using healthy latrines and achieving the STBM pillar, namely ODF. 94.44% of respondents are willing to get used to using healthy latrines, but 5.56% of respondents are not willing to get used to using healthy latrines because they are worried about leaks and are not willing to pay for repairs. The willingness of beneficiaries to familiarize themselves with defecating in healthy latrines is a form of their participation as actors of healthy living in maintaining a healthy environment.

Financial Aspect Analysis

The financial aspect is related to determining the need for the amount of funds and at the same time their allocation and finding related sources of funds efficiently so as to provide maximum benefits.

Respondent's Economic Condition

Based on the HSPK of East Java Province, the total cost needed to build a healthy individual type 3-1 latrine is IDR 3,540,716.00. With this cost, people who still participate in disposing of feces into the river will not agree and want to make healthy latrines at their homes. So that the Surabaya City Government in collaboration with sanitation

entrepreneurs held free healthy latrines for poor families who experienced problems with having healthy latrines due to economic factors.

Considering the monthly expenses, there are still 40.74% of respondents who are not willing to carry out repairs if a tank leak occurs and 44.44% of respondents are also not willing to carry out routine desludging. This shows the lack of public awareness to participate in managing the operation and maintenance of septic tanks. The Mayor of Surabaya City has set a service fee for the treatment of liquid waste in the form of fecal waste at the sewage treatment plant of IDR 30,000 for every 1 m³ of waste disposed of in Surabaya Mayor Regulation number 29 of 2023.

Sources of Funding

For people who are interested in holding individual healthy latrines, they can use the installment program provided by non-government agencies or sanitation entrepreneurs. APPSANI is a sanitation entrepreneur that provides loans or installments for latrine construction, so that consumers only have to pay without the hassle of looking for materials for latrine construction and sanitation workers. APPSANI sets a price of IDR 2,975,000 for the 3-1 healthy latrine technology's type with a down payment of IDR 500,000 or as much as the consumer can afford and 4-6x installments. Individual septic tanks are the most suitable technology to reduce the amount of OD. This choice was chosen as the communities did not have area for both communal septic tanks and conventional wastewater treatment (Uripan et al., 2020).

In addition to the sources of funds above, funding from companies, both private and government-owned, can also be considered. Then another source of funding is from the community which is in activities that support the main activities. Sources of funding from the community fully require the ability of the community to pay. In RT 1 RW 3, Kelurahan Sidodadi, a fee/retribution of IDR 5,000.00/week has been paid from the community using the shared latrine as operational and maintenance costs for the healthy latrine in accordance with a mutual agreement.

SWOT Analysis

The SWOT analysis in this study was carried out to formulate a strategy as a structured effort in achieving goals/objectives in terms of access to domestic wastewater (feces) by considering the potential of internal factors, namely Strengths and Weaknesses and external factors, namely Opportunities and Threats. In carrying out the analysis, it is also necessary to weight the factors that have been grouped, then plot them in a SWOT graph as shown in Figure 2. The position of quadrant II shows that the conditions of the people in Simokerto and Kenjeran Districts show strong topics but also face challenges that have the potential to cause new problems, thus requiring new strategies to capture existing opportunities. The key factors for a change in strategy are the strengths and threats factors.

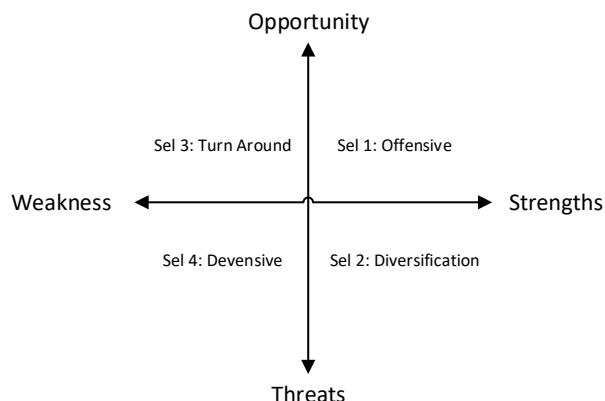


FIGURE 3. SWOT Cartesius Diagram

The proposed strategy is regarding financing and education with counseling/discussion, including:

- Strategy 1: Provision of individual toilets and recommendations for communal septic tank facilities because they are considered more efficient than individual septic tanks based on limited land conditions.
- Strategy 2: Organize a latrine installment program for people who are interested in building individual healthy latrines and provide subsidies/funding sources that do not originate from the community itself for septic tank operations and maintenance.
- Strategy 3: Providing counseling/discussions on healthy lifestyles and environmental sanitation to get used to using the latrines on a regular basis in collaboration with the local District/Village, local Puskesmas, and related sanitation entrepreneurs.

5. CONCLUSIONS

In terms of internal community factors, the willingness of the community to participate in counseling shows the community's interest in learning about environmental sanitation issues. However, there is a problem with limited funding sources for routine desludging activities. A funding strategy that can be recommended is an installment program from sanitation entrepreneurs for people who are interested in having individual healthy latrines. In addition, the cost of desludging should not be an obstacle because the desludging period is 3 years and with a maximum sludge volume of 0.72 m³/3 years. From the results of the questionnaire to 54 recipients of healthy latrines, the following conclusions were drawn:

1. 5.56% of people still practice open defecation in the study area even though healthy latrines are available.
2. 11.2% of the people in the study area demonstrated the ability to have individual healthy latrines and manage and maintain septic tanks.

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