

PHENOMENOLOGY OF UNSUSTAINABLE SANITATION IN DEVELOPING COUNTRIES: GROUNDED THEORY METHODS IN COASTAL AREA OF INDONESIA

SUNING*¹ AND PUNGUT²

¹Regional and City Planning, ²Environmental Engineering, Adi Buana PGRI University Surabaya, Jalan Ngagel Dadi III-3B/37, Ngagel, Wanokromo, Surabaya, 60234 East Java, Indonesia.

*Corresponding author: suning@unipasby.ac.id

Abstract: Coastal areas in developing countries, including Indonesia, are still plagued by sanitation-related issues. Sedati's coastal communities have a habit of defecating in the sea, ponds, and rivers. These habits are affected by the unavailability of clean water, the latrines conditions still dirty, damaged, and uncomfortable. This study aims to investigate empirically the defecation habits phenomenon, which causes sanitation services to be unsustainable. Qualitative and descriptive approaches based on the grounded theory were used in this study. The results showed that 6% of coastal communities still defecate in the rivers, 13% in the bushes, 17% in the fishponds or sea, 2% in the relative-owned latrines, 1% in the communal latrines, and 61% in their personal-owned latrines. The communal latrines that have been provided by the government based on this study showed it had not been utilized optimally by the communities. This study provides a policy strategies as solution to solve the sanitation problems, including the develop of the institutions to monitor the sanitation programs, build the sanitation facilities close to settlements, give them free of charge in latrines usage, provide the sufficient clean water, provide the information about environmental cleanliness and build a commitment between the government and the communities to improve the sanitation services.

Keywords: Coastal communities, Communal latrines, Defecation habits, Policy, Sanitation.

Introduction

Sanitation is an environmental infrastructure aimed at supporting health. This is particular in coastal areas, where the sanitation of latrines is still a significant requirement. Fifty percent of coastal populations (mostly traditional people) would urinate in rivers and ponds, and this can cause the spread of disease (Suning & Soedjono, 2012). The government has provided many programs in support of sanitation, but coastal communities have not optimized its use. Suning (2015) noted that in 2009, the Sedati coastal area had been assisted by the government through the provision of sanitation facilities, but the community had not utilized it well. Indeed, even the physical building housing the communal latrine is now damaged in its entirety due to disuse and being unkept.

The condition of sanitation and drinking water in Indonesia in several undeveloped areas

are well below standard. Consequently, this has an impact on the growth of the Gross Domestic Indonesia of 2.3%, causing the state losses of up to 58 trillion (World Bank, 2007). Bracken *et al.* (2005) explained that providing unsustainable sanitation is a short-term solution and will create long-term problems. The lack of public access to sanitation services will have an impact on both human health and the environment (Tukahirwa *et al.*, 2011). Therefore, providing sustainable sanitation is essential. As Kvamstrom *et al.* (2004) argued, sustainable sanitation is a sanitation system in which the presence of sanitation will protect and improve human health. Furthermore, it will neither degrade the environment nor technically nor institutions and are appropriate, and both economically and socially acceptable.

The Sedati coastal area is in the region of the Sidoarjo regency. Clean and Healthy Life Behavior (PHBS) in the Sidoarjo district

shows that almost 100% of the people residing there have low awareness of handwashing with soap. In public sanitation facilities, almost 100% are not well maintained, and there are contamination issues in places of water storage (Update of Sanitation Strategy of City, Sidoarjo Regency, 2015). The state of sanitation in Indonesia's Sidoarjo regency is an issue that is also experienced by developing countries in some disadvantaged areas, including certain places in Nigeria (Eremutha *et al.*, 2016), India (O'Reilly *et al.*, 2017), and Ethiopia (Crockera *et al.*, 2017)

This study is aimed at early identification of the coastal community behavior phenomena and seeks to contribute to the overcoming of sanitation problems in developing countries, along with providing solutions to realize 100% of sanitation access for the population. This study thus aims to empirically illustrate the phenomenon of the unsustainability of the sanitation program provided by the government, so that the factors that are contributing to the lack of sustainable access to sanitation services are acquired.

Methods

Research design

Grounded theory method was used in this study (Glaser & Strauss 1967; Roux & Barry, 2011; Creswell *in* Roux & Barry, 2011. Exploration approach using interview strategy to investigate the sanitation conditions in Sedati's coastal communities was conducted in this study. Secondary data from some institutions also used in this study, i.e.: public health office, central bureau of statistics, development planning agency, public works office

Population and Sample

Respondents included 100 people who were determined randomly, with 20 respondents from each village. Those 20 respondents assumed as communities who understood very well about the empirical conditions of the sanitation in their area.

Sampling Procedure

This study conducted in five coastal villages in Sedati, Sidoarjo, East Java, Indonesia, i.e.: Kalang Anyar, Gisik Cemandi, Tambak Cemandi, Banjar Kemuning, and Segoro Tambak. The coastal area was selected as a research location as it was included in the category of residential and underdeveloped neighbourhoods (Sidoarjo's Regent Decree, 2015). The communities in each village have the same characteristics with regards to economic activities, which include primary occupations such as fishermen, fisherman assistant, fishponds owner and workers, self-employed, and others. The coastal area society was lacking in sanitation importance; they often used the sea, ponds, and rivers as a public sanitation place. As for drinking water, they often bought it from the services of water vendors. Data was obtained through primary surveys, including interviews and questionnaires with coastal communities and village stakeholders. The data was obtained based on the previously explained part (population and sample). After the results of the questionnaire were obtained, the results of the data were verified through the interview activities.

Data Analysis

There were two kinds of data in this study, i.e.: quantitative and qualitative data. The quantitative data comprised as survey questionnaire results, while the qualitative data comprised as an interview by structured questions and focus group discussion. The data were obtained then analysed to obtain the information data on factors causing unsustainable sanitation. These are included social, economic, institutional, and community participation factors. Data coding was done by centered encoding, collecting all responses from respondents, then grouping each of the same answers from the respondents, and selectively coding it to integrate and filter categories, to ensure that all the categories were related to the core category, for the grounded theory basis to be generated. The data visualized as graphics and table using Microsoft excel 2010 software.

Result and Discussion

Respondents Characteristic

The interview result showed that economic activities in Sedati include being fishermen, fishponds owner and workers, self-employed, and a few farmers. The average income level of the community monthly ranged from one million to one million five hundred rupiahs. People with the income level of more than one million five hundred rupiahs included: Segoro Tambak (77.78%), Tambak Cemandi (52.94%), Gisik Cemandi (50%), Banjar Kemuning (42.86%), and Kalang Anyar (44%) (Fig. 1).

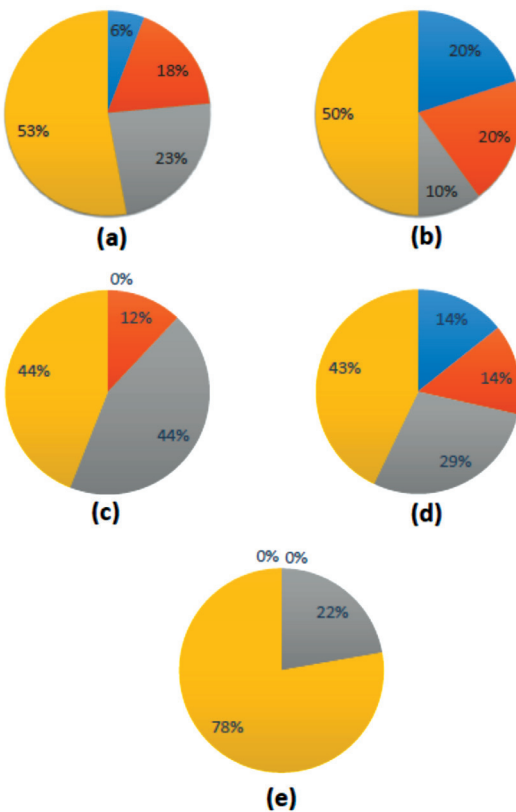


Figure 1: The income level of respondents from 5 villages in Sedati District (2017): Tambak Cemandi (a), Gisik Cemandi (b), Kalanganyar (c), Banjar Kemuning (d), and Segoro Tambak (e). Each colour represents the income level: <500.000 (blue); 500.000-1.000.000 (dark orange); 1.000.000-1.500.000 (grey); >1.500.000 (light orange). The data obtained from the questionnaire result.

Table 1 illustrates the 100 respondents; 39 respondents had no personal sanitation. This showed the coastal community’s awareness of the importance of hygiene and health was still low. Therefore, it is necessary for the role of government to provide socialization to the community in the re-using of the communal latrine facilities that have been provided both by the local and village government.

Table 2 shows that 61% of respondents have sanitation facilities in their homes, 2% utilize the facilities at their relatives’ houses, and the rest do not have adequate sanitation facilities and are forced to contaminate the environment. Communal latrines provided by the government since 2009 have not been optimally utilized, with only 1% of the respondents stating that they used them. Physically, the communal latrine buildings are damaged, dirty, lacking in comfort, and not having enough supply of clean water.

Factors Affecting Society in the Sanitation Behaviour Grounded Theory

Institutional

The institutional aspect is the provision of sanitation facilities and a communal toilet. In five coastal villages, communal latrines have been provided by the government, but have not been used by their function. Institutions that serve sanitation facilities are essential to maintain sanitation sustainability. As of the time of the study, the coastal village still had no institutional specializing in sanitation, and as such, there was no technical control or supervision for the maintenance of communal latrines. This condition affects the physical condition of the hygiene-lacking latrines and incorporates ineffective sanitation facilities implementation. Based on the questionnaire, most respondents stated that the government had provided communal latrines, intensive socialization to the community related to maintenance, and the extension of sanitation. However, the implementation within the villages was not optimized. The government, as an institutional aspect, needs to pay more attention to resolving

Table 1: The type of sanitation facilities in five villages

Type	Village					Percentage (%)
	Segorotambak	Banjar kemuning	Gisik Cemandi	Tambak Cemandi	Kalanganyar	
Non-cover	2	2	2	0	7	13
Cover	7	4	8	7	17	43
Swan-neck shape	2	1	2	0	0	5
Do not have	1	6	2	17	13	39
Total	12	13	14	24	37	100

^{a)} The data obtained from the survey interview result.

Table 2: The opened-location people used to their sanitation facilities

Type	Village					Percentage (%)
	Segorotambak	Banjar kemuning	Gisik Cemandi	Tambak Cemandi	Kalanganyar	
Rivers	1	0	1	3	1	6
Bushes	0	1	0	0	12	13
Fishpond/Sea	0	4	0	13	0	17
Communal latrines	0	0	0	1	0	1
Relative-owned latrines	0	1	1	0	0	2
Personal-owned latrines	11	7	12	7	24	61
Total	12	13	14	24	37	100

^{a)} The data obtained from the survey interview result.

the sanitation-related issues in Sedati District through these methods of approach: (1) Establish the structure of the sanitation management (2) Evaluate whether the communal latrine in each village is still functioning, (3) Create community empowerment programs related to sanitation functioning, (3) Becoming a government information centre for sanitation practices (4) Establish cooperation with the government and NGO related to dissemination, counselling, and health promotion activities related to the importance of personal hygiene and the environment.

Socio-economic Society

Coastal communities, in general, have become part of a pluralistic society but still share their traditional values, which would then be a combination of urban and rural characteristics. Due to the structure of coastal communities being so plural, it can form a system and cultural

values that are the acculturation of the culture of each component which forms the structure of its society. In general, coastal communities are the livelihoods for most fishers. For the local community, fishermen activities are firmly attached to the psyche as a traditional culture that reflects a sense of community togetherness. The social conditions of society have hard and decisive characteristics due to their lives being dependent on the unpredictable nature conditions, and from that condition, they form stable characteristic to defend themselves.

The social aspect of society is defined through welfare economics. Welfare economics is a rational process of society from the obstacles to progression. This progress is generally geared towards achieving a level of personal and social well-being with a certain measure of living level, basic needs fulfilment, quality of life, and human development. As such, the concept of economic welfare towards personal and social

well-being is a common goal, a factor that was considered in the doing of this research (Sen, 2002). Sen (1983) also stated that economic development refers to sustainability that promotes the standard of living, health, human resource development, infrastructure, regional competitiveness, environmental sustainability, social inclusion, safety, literacy, and other initiatives. Specifically, economic development is generally more directed to a policy intervention effort to improve the economy and social welfare of the community, through increasing market productivity by increasing gross domestic product (GDP).

Supply and Service of Sanitation Utilities

Sanitation, in general, refers to the provision of facilities and services of human waste disposal, such as urine and faeces. As such, sanitation is a critical and indispensable facility. Van & Viet (2011) state that policymakers and the general public have not yet fully understood the

importance of proper sanitation solutions. Thus, the availability of sanitation should be improved to include the economic impact of sanitation, cost, and benefits economically. Likewise, Katukiza *et al.* (2010) suggested that the sustainability of sanitation is influenced by the active role of stakeholders, communities, and technologies provided. Those still use communal latrines that are built by the government who do not have sanitation or private latrines. However, they must pay to use it. Everyday use without proper maintenance worsens communal conditions, leading to uncomfortable conditions, a lack of latrine cleanliness and external factors such as the latrine location being too far lead people to choose other alternatives, i.e. defecation in ponds and the sea behind the house. Community awareness regarding the maintenance of sanitation facilities is essential for everyone to maintain the sustainability of sanitation facilities. There are still many who are not as concerned about the maintenance of

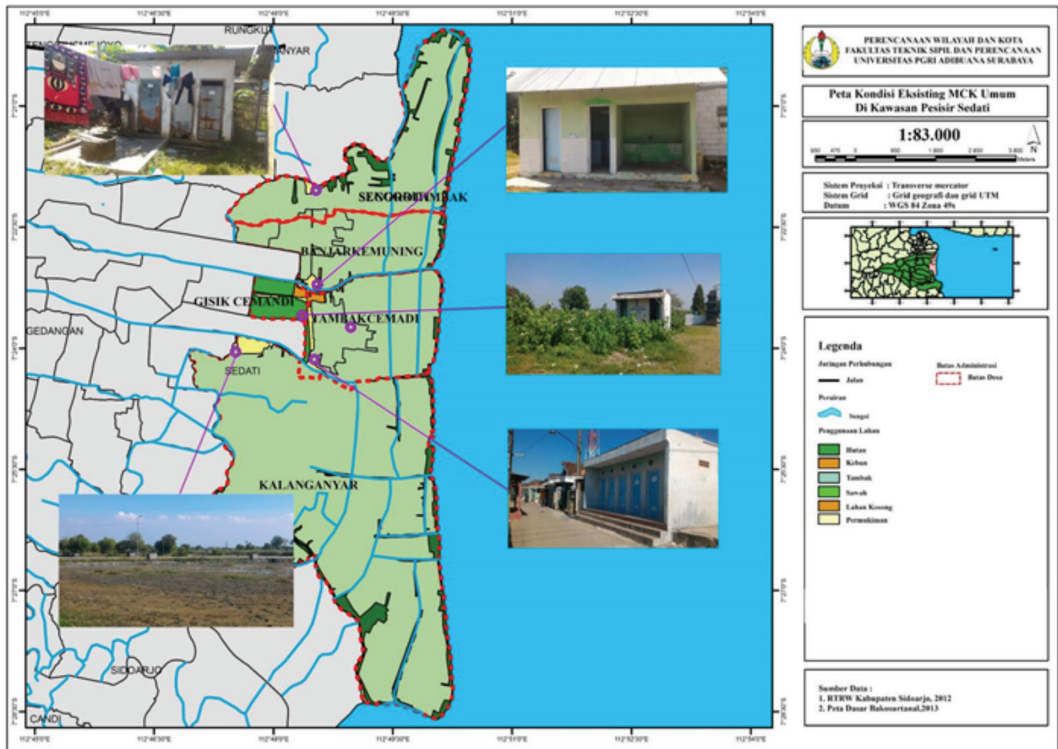


Figure 2: Photo Mapping Research Sites and Condition of existing latrines in coastal areas
 Source: Sidoarjo’s government, (2012).

latrines. As such, the physical building housing the latrines only last for 2 to 3 years. The lack of public awareness with latrine maintenance is also influenced by inadequate toilet facilities, one of which is water supply. Photomapping of the research location and the existing condition of the toilet is presented in Figure 2.

Role of Communities in Sanitation Management

The community assumes that the supervision and maintenance of the latrine by the government or institution is still happening. Therefore, they tend to not partake in monitoring and maintaining the latrines provided by the government. People do not take responsibility for the maintenance of the infrastructure built as they feel they have no part in it. In addition to the lack of active community participation in general maintenance and maintaining sanitation, the government has also been less active (passive) in providing intensive socialization to the community associated with maintenance and extension of sanitation. Therefore, the government's active role in sanitation facilities is essential, not only in providing these facilities but also in the promotion of health-related sustainability regarding the importance of personal hygiene and the environment.

Conclusion

Most of the coastal communities in Sedati district, Sidoarjo, Indonesia still have defecation habits in the river, bushes, fishponds, or sea (36%) which causes sanitation services to be unsustainable. The study result showed the communal latrines in this area had not been utilized optimally by the communities. Based on the analysis showed the information about the aspects that affect the non-sustainability of sanitation in coastal areas, i.e.: (1) institutional aspect, as there is currently no peculiar institution for handling sanitation, thus the maintenance of sanitation-related issues are required, (2) social aspect of society, it is necessary to improve the quality of human resources and health awareness, (3) an integrated commitment is required between the government and the community to have

proper sanitation services for the community, (4) the aspect of community participation, as it is necessary to establish a good cooperative relationship between the government and the community for the maintenance of the sanitation facilities, along with the dissemination of sanitation behaviour, and applicable sanitation policies. Further research is needed to determine the design of interesting latrines. Furthermore, integration between sanitation, clean water, and economic development are needed to develop sustainable sanitation services.

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