

## Sanitation and modernity on a Remote Island: A study of community behavior toward hygienic latrine use in Pengikik Island

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### ABSTRACT

This study explores the transformation of community behavior regarding the use of hygienic latrines in Pengikik Village, a remote island community with historically poor sanitation practices. Inadequate latrine management contributes significantly to environmental degradation. Promoting the widespread use of healthy latrines, which are facilities designed for safe and sanitary human waste disposal, is a key strategy for improving public health. Using a phenomenological framework design, the research draws on data from six purposively selected informants through semi-structured interviews. The analysis employs Peter L. Berger and Thomas Luckmann's theory of social construction to examine behavioral changes. The findings indicate that 19 out of 53 households have constructed private healthy latrines, and eight communal units have been built with septic systems. Behavioral change occurred through three interrelated processes: targeted socialization and education by health workers, gradual internalization of hygienic practices, and normalization of latrine use in daily life. These processes have reshaped community perceptions, fostering a collective understanding of the importance of sanitary facilities in the community. As a result, the community has shifted away from open defecation and toward the consistent use of healthy latrines.

**Keywords:** Hygienic Latrines, Sanitation, Remote Island, Pengikik, Tambelan

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## 1. INTRODUCTION

Sanitation is a fundamental determinant of public health and environmental welfare. Among its essential components, access to safe and hygienic latrines plays a vital role in preventing the spread of communicable diseases, especially in rural and underserved areas (Gwenzi, 2021; Okesanya et al., 2024). In the Indonesian context—often characterized as an agrarian and developing nation—environmental health issues remain widespread, with sanitation emerging as a critical area of concern (Daniel et al., 2021; Niko, 2019; Syafitri et al., 2024).

The Ministry of Health has acknowledged the significance of adequate sanitation with the enactment of Decree No. 285/2008 on the National Strategy for Community-Based Total Sanitation (STBM), which supports the implementation of Healthy Latrines as a tool to combat the spread of diseases. Healthy latrines are termed as such because they serve a deeper purpose than just providing a physical means for the disposal of wastes, serving as a symbol and a reflection of the health and awareness of the community as a whole (Hartaty & Menga, 2022).

Notwithstanding public health interventions and infrastructure put in place, Indonesia still faces a worrying number of sanitation-related diseases. According to the World Health Organization (WHO), diarrhea remains a major cause of death and is a sanitation-and water hygiene-related disease. Approximately 1.4 million deaths occur annually worldwide due to this disease. The majority of these deaths are concentrated in low- and middle-income countries in which basic sanitation services are either very poorly developed or not available at all (Kurjak et al., 2023; Tabutin et al., 2017).

The problem of health equality in Indonesia faces additional challenges posed by geographic disparity, economic inequality, and insufficient infrastructure development in rural areas. People living in communities without any sanitation facilities are at a greater risk to health, and in the long term are faced with a deteriorating quality of life, restricted access to natural resources, and environmental degradation (Hutton & Chase, 2016; Bisung & Elliott, 2017). Communities without sanitation facilities offer a glimpse into the dire consequences of health inequality. Individuals living in such communities face serious health problems. Indonesia as a country is facing a greater risk of deteriorating public health due to the absence of sanitation facilities in some of its areas (Hutton & Chase, 2016; Bisung & Elliott, 2017).

Sanitation fundamentally concerns the mitigating of environmental factors with the potential to negatively impact human health (Jiménez et al., 2019; Menseh & Enu-Kwesi, 2019). Preventing the contamination of water bodies and soil is crucial; therefore, effective sanitation management, particularly the safe disposal of human excreta, is critical. Persistent open defecation is still observed, especially in rural areas, due to the lack of targeted facilities, insufficient education, and deeply entrenched social practices. Children and other vulnerable populations experience the most negative impacts of disease and malnutrition due to non-existent or poorly constructed sanitation facilities and pollution stemming from the local environment (Niko, 2025). Installing healthy latrines is not just a matter of infrastructure; a change in human behavior and culture is also required. Latrine use might increase if physical access to latrines, public understanding, social norms, and community practices is improved (Wahyuni & Eliska, 2023).

Even with national sanitation programs and awareness campaigns, behavior change and open defecation remain issues in certain regions. Sanitation facilities have been constructed in numerous rural regions, but in many cases these facilities are abandoned after a short period (Suprpto & Arda, 2021). This highlights a notable issue with the current methods of addressing sanitation, which focus on technical issues rather than the social culture that shapes sanitation practices. Moving from open defecation to latrine use is far more complicated than individual choice or simply having infrastructure available; it is strongly influenced by social traditions, collective practices, and long-held beliefs.

Infrequently used rural sanitation facilities compel communities to practice open defecation. Such behaviors can also be blamed on outdated rituals and extreme gaps in the knowledge of hygiene and public health issues. The practice of open defecation is amplified throughout rural communities, with successive generations not adopting alternative defecation methods due to inaccessibility. The open defecation cycle will not be broken, even with the construction of healthy latrines, until there is a shift in perceptions regarding the notions of privacy, health, and hygiene as they relate to latrines. Thus, analyzing sanitation

behavior calls for a sociological lens that views it as a phenomenon crafted by interactions, customs, and shared experiences.

This study uses the framework of social construction theory by Peter L. Berger and Thomas Luckmann to analyze how rural areas depart from open defecation and start using healthy latrines. According to this theory, social reality is not an unchangeable or objective fact; rather, it is something that is created and recreated over time. It goes without saying that people do what they do for reasons. They have a reason for a certain object to be in their life, a reason for a certain behavior to exist, or for a certain institution to prevail. All these reasons stem from socialization and communal life. Leveraging this framework, this study intends to research the institutionalization of new social norms within communities, especially the use of latrines as opposed to the previous usage of open defecation. The study does not focus on the physical construction of latrines; rather, it focuses on the symbolic and reconciling social practices that dictate attitudes towards and the use of these latrines. It investigates social learning, community participation, peer pressure, and health message internalization as factors that determine changes in behavior.

This study also examines the impact of government interventions on local beliefs and practices and the appropriateness of community-centric approaches in top-down sanitation programs. This study is concerned with how changes in behavior are connected with the construction of meaning and norm formation at a broader level. This study sheds light on the deeper cultural and social issues related to sanitation behavior, which can be useful in improving public health strategies. This study aims to understand and explain how and why a shift in behavior from open defecation to latrine use occurs. It looks beyond the narrow technical and educational lens and tries to understand the shift as a social achievement emerging out of the complex interaction between tradition, knowledge, and community agency.

## **2. METHODOLOGY**

This study employs a phenomenological framework to explore and interpret participants' lived experiences in their everyday contexts, aiming to reveal how individuals construct meanings around social behaviors and practices and how these meanings subsequently guide and shape their actions. Within the phenomenological paradigm, the researcher seeks to suspend prior assumptions (bracketing) and engage reflectively in the process of data collection and interpretation to grasp the essence of the phenomenon as experienced by the participants. Informants' experiences are treated as the primary source for understanding the social reality. Consequently, the researcher cultivated a close and open relationship with the participants to elicit rich, nuanced narratives that reflected their lifeworlds.

Data collection was carried out through three principal methods: direct observation, in-depth interviews, and documentation. Observation involved on-site engagement to capture the social environment and behaviors of participants in their natural setting, specifically, observing community activities on Pengikik Island. In-depth interviews were conducted to explore the participants' interpretations, experiences, and perspectives related to the phenomenon under study. The interviewees comprised household members and healthcare workers from the island. The selection criteria were designed to ensure depth of information, involving two housewives and two heads of households, all native to Pengikik Island, along with one healthcare worker who has served on the island for over twenty years. Documentation served as a supplementary method to enhance and corroborate insights gathered through the other two techniques.

Using a phenomenological approach, the study seeks to understand the participants' daily experiences, and aims to uncover the dynamics of participants' experiences lived over a period of time, with an emphasis on how participants comprehend meaning in life daily. Therefore, the study's findings are expected to provide not only insights into the social realities of the study but also a more profound understanding of the structures of meaning underpinning the participants' practices and their changes over time.

### 3. RESULTS AND DISCUSSION

#### 3.1 The Social Construction of Sanitation Practices in Everyday Life

Defining a “sanitary toilet” is not as straightforward as it may appear. The meaning is shaped by the specific community context rather than any universal standard. For instance, in Pengikik Village, a sanitary toilet is more than just a facility for waste disposal; it’s shaped by local understandings of hygiene, health, and what is considered an acceptable standard of living. Yet, these local interpretations are often basic and don’t always match up with the technical definitions set by public health authorities.

A significant challenge in Pengikik is the widespread practice of open defecation. This behavior persists because it has been normalized through generations, and many residents still don’t fully grasp the link between poor sanitation and public health risks. The lack of adequate toilet facilities in many homes forces people to use gardens, forests, or coastal areas as makeshift toilets. For much of the community, sanitation is still viewed as an everyday routine, not as something with major health consequences.

Nonetheless, there is evidence of changing attitudes. Increasingly, residents are recognizing the health dangers associated with inadequate sanitation, particularly for children and other vulnerable groups. The high incidence of diarrhea, cholera, and other gastrointestinal illnesses underscores the impact of environmental contamination. This shift in perspective has been driven, in part, by government and healthcare-led educational programs delivered through village meetings, home visits, and visual information campaigns.

In response, the government constructed eight public sanitary toilets for communal use in Pengikik Island. This intervention marked a turning point in local perceptions. Toilets began to represent not just a place for defecation, but also progress, cleanliness, and a commitment to family well-being. The design of these facilities includes features such as odor management, reliable water access, and user comfort.

Several different toilet types were introduced to the village, including pit latrines (*cemplung*), sloped toilets (*plengsengan*), borehole toilets, over-pond toilets, and models equipped with septic tanks. The most common type in Pengikik is the squat toilet with a goose-neck water trap connected to a septic tank, a choice that reflects both local geography and the technical skills of the population. In summary, the concept of a “sanitary toilet” in this context is evolving, influenced by both external interventions and ongoing shifts in community awareness. See Figure 1 and 2



**Figure 1. Public toilet**



**Figure 2. household toilet**

The construction of 19 privately built toilets in Pengikik Village represents more than a technical achievement; it reflects a profound social transformation. By choosing not to wait for direct government intervention, households demonstrated agency and personal responsibility in addressing their sanitation needs. This shift suggests that sanitation practices are no longer perceived merely as compliance with external policies but are increasingly embedded in local values and aspirations, signaling a broader reconfiguration of how communities define dignity and well-being.

Figure 1 illustrates the inadequacy of the public toilet, which was poorly maintained and situated at the far edge of the village, making it inconvenient for regular use by the villagers. In contrast, Figure 2 depicts the privately owned toilets constructed within individual households. Although their number remains limited—approximately 19 households out of a total of approximately 50—this trend marks the beginning of a significant transition. These privately built facilities indicate a growing movement toward localized, household-level solutions, highlighting both the scarcity of infrastructure and the emerging desire for self-reliance to improve everyday living conditions.

Notably, these choices unfolded within a network of social interactions. Everyday exchanges among neighbors, comparing experiences, discussing costs, and weighing benefits served as conduits for new ideas about toilets. Community leaders provided guidance and framed toilet adoption as both a health imperative and moral responsibility. Within families, particularly those with members familiar with urban norms, there were strong advocates for change, linking the presence of toilets to family dignity and well-being. As a result, the decision to build a private toilet was rarely isolated; it was nurtured by a collective dynamic of persuasion and exemplification.

At the heart of this change is a reimagining of sanitation. Practices once dismissed as unnecessary or burdensome, such as building a toilet, are now aligned with modernity, health consciousness, and self-respect. Open defecation, previously unremarkable, has come to be seen as undesirable and even shameful. Toilets have shifted from being considered a luxury to an essential element of a dignified life. This transformation underscores that infrastructure is not just a technical matter but is deeply intertwined with cultural and symbolic values.

The sociological framework of Berger and Luckmann is instructive. According to their theory of social construction, practices and objects acquire meaning through cycles of externalization, objectivation, and internalization. In Pengikik Village, the initial construction of toilets by a few households externalized new values, demonstrating that such practices are viable and desirable. As these toilets became visible, they gained legitimacy through community discussions. Eventually, internalization occurred: private toilets became the expected norm, integrated into people's worldviews and transmitted to the next generation.

Importantly, while construction efforts were private, their effects were communal in nature. The presence of toilets improved household hygiene and environmental conditions for the wider community. Social status became linked to sanitation, with toilet owners viewed as progressive and responsible, while others risked negative labeling. This new social distinction created additional incentives for adoption, connecting sanitation not only to health but also to identity and recognition.

Ultimately, the Pengikik Village case demonstrates that sustainable progress in sanitation requires more than infrastructure provision or technical campaigns. Change is sustained when it is rooted in the local social fabric and sanitation becomes a marker of modernity, care, and dignity through daily conversations and shared values. This suggests that future development efforts should focus on fostering dialogue and peer influence as much as on delivering physical infrastructure. Social processes and cultural meaning-making are critical drivers of long-lasting change.

### **3.2 Behavioral Transformation and the Challenges of Modernity in Hygienic Latrine Use**

Drawing on Berger and Luckmann's theory of social construction, the evolving meanings and practices surrounding sanitary toilet use in Pengikik Village are best understood as a dynamic interaction between individuals and the broader society. In the initial stage, known as externalization, individuals express new ideas and values within their social context (Dharma, 2018). In Pengikik, this process is visible in the structured efforts of government officials, health workers, and community leaders to introduce sanitary toilets as essential for health and human dignity.

These outreach initiatives unfolded both formally and informally, with community meetings and casual gatherings serving as key venues. Rather than focusing solely on technical aspects, these sessions fostered open dialogue about everyday experiences related to sanitation and family health. Community members gradually began to recognize the significance of proper sanitation, shared positive outcomes resulting from toilet use, and articulated aspirations for improved facilities. Thus, socialization plays a pivotal role in transmitting new values and knowledge throughout the community.

The subsequent phase, objectivation, occurs when these shared ideas are widely accepted and internalized as objective social norms. In Pengikik, the increasing adoption of sanitary toilets marked a shift: constructing a private toilet was no longer perceived as a personal preference but as a communal expectation. Even households that had not yet built toilets began to feel social pressure to conform, driven by a desire to avoid marginalization.

This process is further reinforced by changing social narratives. Conversations about sanitary toilets became commonplace, surfacing in informal neighborly interactions, community forums, and even educational settings for children. Ultimately, the toilet was redefined—not merely as a utilitarian facility, but as a symbol of collective health, community advancement, and social responsibility.

At the stage of internalization, individuals don't just intellectually grasp the value of improved sanitation, they start to genuinely see it as the right and necessary course of action for themselves and their community. This shift goes beyond compliance; it reflects a deep-rooted sense that proper toilet use is morally significant and is directly tied to collective well-being.

Evidence of this internalization is visible in daily routines: villagers clean their toilets regularly, pass on good habits to their children, and even encourage others to build similar facilities. Attitudes toward the environment also transform. Open defecation declines, people take more responsibility for maintaining clean surroundings, and there's greater involvement in community efforts to keep public infrastructure in good shape.

A crucial factor in sustaining health-related behaviors is social support, which aligns closely with the Health Belief Model's (Champion & Skinner, 2008) emphasis on perceived benefits and cues to action. Family members, neighbors, and local leaders not only reinforce new values but also provide encouragement and act as informal monitors. This social reinforcement strengthens individuals' confidence in adopting positive behaviors, as they perceive both personal and collective benefits, while also responding to social cues that remind them to remain consistent in their practices.

The process, therefore, extends beyond external policies or the construction of healthcare facilities. Change is cultivated through ongoing communication, negotiation, and the gradual development of shared norms, reflecting the Health Belief Model's focus on modifying perceived barriers and shaping collective efficacy. Health campaigns may initiate awareness, but their true effectiveness relies on the extent to which the community internalizes these values and sustains them as part of everyday life, embedding health behaviors within social and cultural structures.

Social institutions undeniably play a central role. The family, often described as the foundational unit of socialization, functions as the initial gateway for transmitting emerging norms. Beyond the household, schools, community health posts, and informal gatherings—like neighborhood associations, serve as crucial spaces for dialogue and shared experiences. Village leaders and religious authorities further enhance the legitimacy of sanitary toilet adoption, framing it as both a moral and spiritual imperative.

Transforming sanitation practices in Pengikik Village was anything but a simple or linear process. Far from being the immediate result of government initiatives or the construction of new facilities, the shift unfolded gradually, through negotiation, reinterpretation, and the steady reworking of daily routines. What first seemed like a technical issue—just a question of infrastructure—turned into a far more layered social phenomenon: a deep reconstruction of meaning and habit.

Initially, many residents regarded the introduction of sanitary toilets with skepticism, sometimes outright resistance. For generations, open defecation had been normalized, woven into the fabric of daily life. Imagining alternatives was a stretch. Yet, over time, through ongoing conversations among neighbors, encouragement from community leaders, and subtle shifts within families, perceptions began to evolve. The toilet slowly took on new significance—not just as a matter of personal convenience, but as a marker of dignity, communal health, and social respectability. These changes didn't happen in isolation. They were the outcome of countless small-scale interactions, debates, and moments of collective reflection.

The progression in Pengikik demonstrates how material infrastructure, such as toilets, can transcend their technical function and accumulate cultural as well as symbolic significance. Drawing on Diffusion of Innovation theory (Dearing, 2009), toilets can be seen as an innovation whose adoption is shaped not only by practical utility but also by the social meanings attached to it. Within this context, the toilet became a marker of alignment with values of cleanliness, progress, and mutual care, signaling participation in a community striving for collective well-being.

For some families, constructing a toilet represented more than just improved sanitation; it symbolized innovation adoption as a declaration of progress and social mobility. In line with Diffusion of Innovation theory (Kaminski, 2011), these households can be understood as “early adopters” who embraced toilets to assert their place in the evolving social hierarchy. Their actions influenced others by demonstrating that toilets were not only practical but also a source of prestige, thereby accelerating the diffusion of this innovation across the community.

At the same time, the toilet also carried meanings of responsibility and intergenerational care, serving as evidence of concern for children, elders, and future generations. This reflects how innovations diffuse most effectively when they resonate with deeply held cultural values and shared visions of a dignified life (Dearing & Cox, 2018). In Pengikik, the toilet became a powerful symbol embedded in the community's imagination, reinforcing that innovation is not simply about technology but about its ability to transform collective identities and aspirations.

Applying a social constructionist lens—such as the framework proposed by Berger and Luckmann, helps clarify this process. Change was not imposed from above; it emerged through shared acts of meaning-making. The initial phase—externalization—occurred as a few households constructed toilets, expressing aspirations and setting new precedents. As these toilets became more visible and discussed, objectivation took place, transforming the practice into a reference point for the wider community. Finally, internalization set in, with toilets becoming part of everyday life and identity, passed down to the next generation. This cycle demonstrates that transformation is not simply about adopting new tools or technologies, but about integrating them into the social fabric.

The experience in Pengikik illustrates how individual choices intersect with collective responsibility, a dynamic that can be understood through the Health Belief Model. The household decision to construct toilets was driven not only by personal perceptions of risk and benefit but also by broader cues to action emerging from the community. Improved sanitation ultimately reduced environmental health risks for all, reinforcing the idea that individual behavior change contributes directly to collective well-being (Green et al., 2020). This reflects how perceived benefits and perceived severity within the Health Belief Model operate beyond the individual level, influencing decisions that carry communal consequences.

At the same time, the adoption of toilets also became intertwined with social meaning. The presence or absence of a toilet acted as a subtle indicator of status, shaping perceptions of who was progressive and responsible. This dimension highlights how health-related behaviors, while motivated by practical concerns, are also embedded in social negotiations of recognition and identity. From the perspective of the Health Belief Model, the social value attached to toilet ownership served as a powerful cue to action, encouraging households to align with emerging norms and avoid being perceived as left behind, thereby linking public health improvements with social solidarity and differentiation.

Ultimately, the case of Pengikik Village points to a crucial insight: enduring social transformation requires more than material provision or policy mandates. It depends on the active engagement of communities, who must reinterpret and internalize new practices within their daily lives. While policy can provide a framework, the real work of embedding meaning happens in relationships, conversations, and lived experience. When new practices are aligned with communal values and identities, they are more likely to take root. This is why technical, top-down sanitation programs often fall short, they overlook the cultural and symbolic dimensions that make new practices both meaningful and sustainable.

In Pengikik Village, the construction of nineteen private toilets represents more than just an upgrade in infrastructure, it marks a significant shift in collective attitudes and social identity. These facilities, once regarded as non-essential, have become emblematic of dignity and communal progress. Notably, this evolution was not prompted by external mandates or fleeting initiatives; rather, it emerged from the community's own ongoing dialogue and reflection on what health, responsibility, and advancement mean within their context.

The essential insight is that lasting development depends upon the active participation of communities, not simply their compliance. Social transformation, as illustrated by Pengikik Village, cannot be reduced to top-down policies or imposed interventions. Instead, it arises through the community's capacity to interpret, negotiate, and embody new practices and values in everyday life. The toilets attained symbolic status precisely because they became woven into the fabric of daily interactions and shared experience. Consequently, effective development initiatives must look beyond technical solutions and engage with the deeper processes by which communities create meaning and redefine their norms. Pengikik's story underscores that sustainable change is grounded not only in physical infrastructure but also in the collective reimagining of well-being, dignity, and mutual responsibility.

#### **4. CONCLUSION**

Drawing from the study's findings on shifts in sanitary toilet usage, it's apparent these behavioral changes unfolded through a social construction process, as outlined by Berger and Luckmann. The process plays out in three major phases: first, the community starts to recognize and talk about why sanitary toilets matter (externalization); next, this practice becomes a regular, expected part of local life (objectivation); and ultimately, using sanitary toilets is so ingrained that it feels completely routine (internalization). In the end, the adoption of sanitary toilets becomes seamlessly woven into daily existence.

Overall, the shift in behavior among residents of Pengikik Village indicates that social practices related to hygiene and sanitation are not solely influenced by external factors such as infrastructure and government assistance. Rather, they are shaped by transformations in collective understanding and social values, which are developed and reinforced through ongoing social interaction within the community.

#### **Ethical Approval**

Ethical approval was not required for this study.

#### **Informed Consent Statement**

All participants were informed of the purpose of the study, and informed consent was obtained prior to data collection. Participation was voluntary, and all responses were kept confidential and used solely for academic research purposes.

### **Authors' Contributions**

AL contributed to validation. RS prepared the draft manuscript. NN, as the corresponding author, contributed to the formal analysis. NN and RS collaborated on writing, reviewing, and editing the manuscript. AL and NN collaborated on the conceptualization. All authors approved the final manuscript, resources, and methodology.

### **Disclosure statement**

The authors declare no potential conflicts of interest was reported by the author(s).

### **Data Availability Statement**

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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