

Research Article

Assessing Sustainability for Shared Sanitation Facilities in Peri-Urban Slum (Case Study of Ciwalengke, Indonesia)

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Abstract

Shared sanitation facilities, particularly shared toilets and bathing facilities, have been a stopgap solutions for low access to household improved sanitation in peri-urban areas. However, many of these facilities are poorly maintained and show signs of neglect. This study evaluates the sustainability of shared sanitation facilities in Ciwalengke, Bandung Regency, using two modified complementary assessment frameworks: (1) the McConville and Mihelcic (2007) sustainability assessment, which examines sustainability across the life-cycle stages of sanitation systems, and (2) the UNICEF Sustainability Checks, which assess key sustainability factors of sanitation services. The findings indicate that existing assessment frameworks require contextual adaptation to reflect local conditions, including the sedentary nature of the community, the simplicity of the sanitation assistance program, and the informal hierarchy between foremen and masons involved in construction. Overall, the sustainability performance of the shared sanitation facilities remains low, with most sustainability aspects scoring below 50% of the maximum possible score. Despite these limitations, hygiene practices among the Ciwalengke community are relatively strong: open defecation rates are lower than the national average, and more than half of residents report washing their hands after defecation. A key weakness identified is the absence of meaningful community involvement during the design stage, as community representatives were not engaged in determining facility design and functionality. To enhance the long-term sustainability of sanitation facilities in Ciwalengke, this study recommends strengthening management arrangements by integrating discussions on operation and maintenance from the initial planning and construction stages through to long-term operation.

Keywords: shared sanitation, sanitation sustainability, life-cycle assessment, Indonesia

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1. Introduction

Poor sanitation contributes to the spread of water-related diseases, negatively affect nutritional outcomes, undermines human dignity, and ultimately slows sustainable human development (Adzawla et al., 2020). West Java, one of the most key province in Indonesia with the highest population, continues to experience relatively low access to improved sanitation. Only 74.02% of households in the province have access to improved sanitation, placing it fifth from the bottom among all Indonesian provinces (Central Bureau of Statistics, 2022). Bandung Regency, a rural and peri-urban area of West Java, has even lower access to improved sanitation, at 70.85% (Central Bureau of Statistics, 2022). This study focuses on Ciwalengke slum area, located in Majalaya as the sixth most densely populated subdistrict in the. The subdistrict has the lowest sanitation access.

In response to poor sanitation, shared sanitation facilities—locally referred to as Mandi, Cuci, Kakus (MCK)—have been developed in Ciwalengke. Nevertheless, the overall condition of the shared sanitation facilities remains lacking. Many facilities are inadequately maintained, lack basic lighting, are not regularly cleaned, and have insecure locks. Ciwalengke is not the first case study with poorly maintained communal sanitation facilities problems. Around the world, the sustainability of water supply and sanitation infrastructure continues to be a significant challenge (Jones & Silva, 2009). The World Bank, (2003) found that only about 50-66% of water supply and sanitation projects evaluated in 2001 were deemed satisfactory, with less than half regarded as sustainable. Assessments of sanitation projects often highlight economic, cultural, and political obstacles as primary reasons impeding sustained success (McConville & Mihelcic, 2007).

In Indonesia, sanitation performance is mainly assessed using a single metric: whether a household has access to a certain level of ‘access’, i.e. improved, unimproved, safely managed sanitation. Moreover, the current focus is limited to individual facilities within households, although policy has recognized the importance to measure sanitation in schools and healthcare facilities (Directorate General of Higher Education, 2009; Ministry of Health Republic Indonesia, 2023). Nevertheless, the international community has also acknowledged the crucial role of shared sanitation in ‘filling the gap’, especially in the rural and peri-urban areas (Mara, 2016). When private sanitation is not available, hygiene and sanitation needs are highly dependent on shared facilities. Thus, this study contributes in the attempt of elevating the functionality and sustainability of shared sanitation infrastructure. A sustainability evaluation framework can be highly useful in shedding a light to certain aspects that need improvement. A number of sanitation sustainability assessment frameworks has been developed (e.g. Davis et al., 2019). McConville and Mihelcic (2007) proposes a framework that evaluates economic, social, and environmental dimensions of sustainability across the water and sanitation project life cycle, from feasibility analysis to the operational stage. In addition, UNICEF, in collaboration with UNDP–SIWI (United Nations Development Programme–Stockholm International Water Institute), developed the UNICEF Sustainability Checks, a sanitation sustainability assessment tool that not only evaluates sustainability performance but also provides actionable recommendations to improve services (UNICEF, 2017). This study applies both the McConville and Mihelcic sustainability assessment framework and the UNICEF Sustainability Checks to evaluate shared sanitation facilities in Ciwalengke. Figure 1 shows the combined framework used in this study as an anchor.



Figure 1. Combined framework from McConville & Mihelcic and the UNICEF Sustainability Checklist

McConville and Mihelcic (2007) offer a logical structure for pinpointing and examining elements that influence the sustainable development of water and sanitation initiatives, centred on five sustainability factors: sociocultural respect, community involvement, political unity, economic viability, and environmental sustainability. These factors are evaluated throughout five stages of a development project's life cycle: needs assessment, conceptual design and feasibility, design and action planning, implementation, and operation and maintenance. The two dimensions—sustainability factors and life cycle stages—are put together into a

scoring matrix that lets evaluators systematically find out which stage and dimension a project is not doing well in. In this research, the framework serves as the structural basis for assessing shared sanitation facilities in Ciwalengke. Meanwhile, The UNICEF Sustainability Checks (2017) include a list of core indicators and underlying factors that should be looked at when monitoring sustainability (UNICEF, 2017). This study utilises a tool that operationalises the evaluation via field-measurable indicators, encompassing open defecation status, sanitation facility usage, handwashing behaviour, and both community-level functionality and institutional capacity.

The specific aims of this study are to: (1) implement and contextualize sustainability assessment tools to align with local conditions; (2) evaluate the sustainability level of shared sanitation facilities in Ciwalengke; (3) analyze the sustainability of sanitation services and community hygiene practices; and (4) identify critical strengths, weaknesses, and recommendations to enhance the long-term sustainability of shared sanitation facilities in Ciwalengke. Through this study, we also hope to propose and assess the suitability of a sustainability assessment framework that can be adopted for Indonesian shared sanitation facilities.

2. Methodology

2.1 Study area

This study was carried out at Ciwalengke, Sukamaju, Majalaya Subdistrict, Bandung Regency, West Java, Indonesia. Ciwalengke consists of five Rukun Warga (RW) or neighborhood units, specifically RW 07 through RW 11. Each RW is provided with one or more communal sanitation facilities utilized by the residents. The predominant sanitation facilities in Ciwalengke consist of communal toilets and bathing areas established by landlords for their tenants' use. In systems like this, ownership, management duties, and cost-recovery methods vary significantly, as users must pay fees to facility owners, requiring a unique evaluation technique. Therefore, the analysis excluded these facilities since the sustainability assessment frameworks utilized in this study are intended for public shared sanitation facilities, not for privately held facilities catering to rental houses. Our initial observation identified six public shared sanitation facilities and two public latrines in Ciwalengke, omitting rental-house sanitation facilities. Figure 2 illustrates the spatial distribution of these facilities.

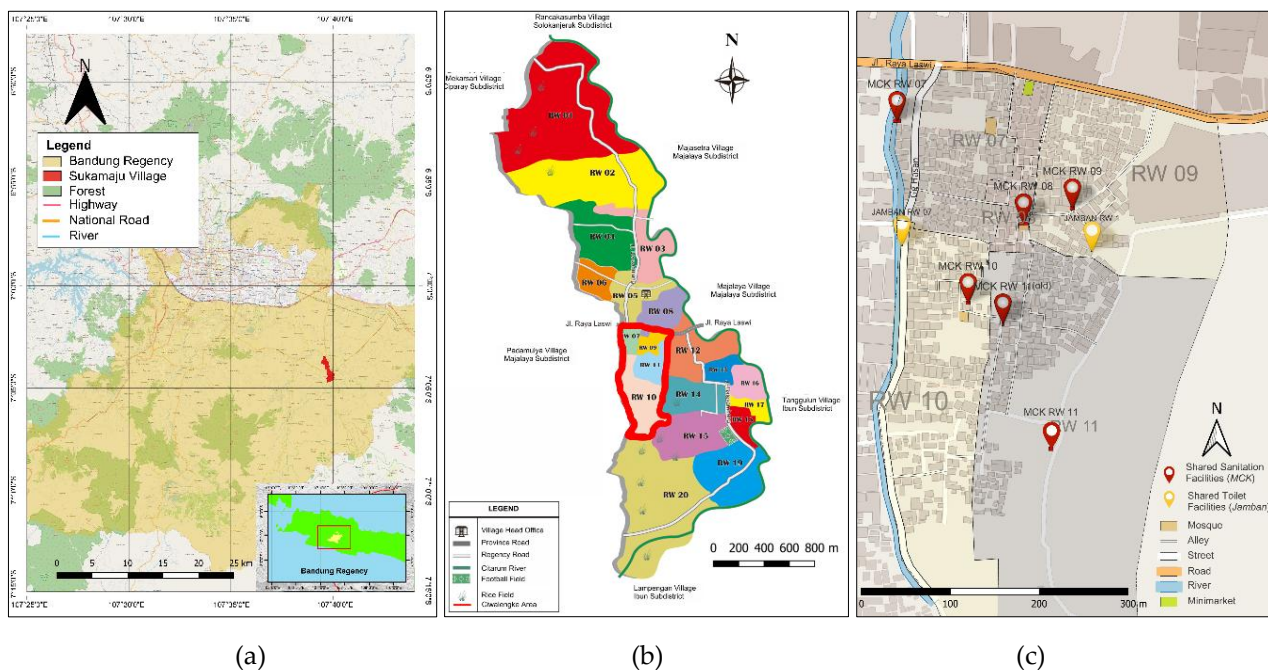


Figure 2. Map of the study area: (a) location of Bandung Regency with Sukamaju Village, (b) location of Sukamaju Village with Ciwalengke, (c) location of Ciwalengke with shared sanitation facilities.

2.2 Data collection methods

This research is based on primary data obtained via questionnaires and semi-structured interviews. Primary data were collected from two respondent groups: (1) key informants knowledgeable about the development and installation of shared sanitation facilities, and (2) local households utilizing these facilities. Interviews were conducted with key informants engaged in the construction of shared sanitation facilities to gather data for the sustainability assessment by McConville and Mihelcic (2007), which emphasizes sustainability across the sanitation system life cycle. Structured questionnaires were employed to survey local families for the UNICEF Sustainability Checks (2017), which evaluate the sustainability of sanitation services and user-related aspects. Before data collection, the questions based on the evaluation frameworks of McConville and Mihelcic (2007) and UNICEF Sustainability Checks (2017) were modified to align with local community circumstances. These modifications guaranteed that the instruments were contextually suitable and consistent with the aims of this study. Table 1 provides an overview of the principal data collection methods and their alignment with the study objectives.

Table 1. Data collection methods based on research objectives

No.	Objectives	Data Collection Methods	Data Sources	Assessment Instrument
1.	Applying the sanitation sustainability assessment instrument according to the local context	Observation and interview	Informants involved in the development process	McConville & Mihelcic (2007) and UNICEF <i>Sustainability Checks</i> (2017)
2.	Determining the level of sustainability of shared sanitation facilities	Interview	Informants involved in the development process (local leaders)	McConville & Mihelcic (2007)
3.	Determining the level of sustainability of shared sanitation services and community hygiene behavior	Questionnaire distribution and observation	Residents (representative of household)	UNICEF <i>Sustainability Checks</i> (2017)
4.	Determine the strength and weakness of shared sanitation facilities and recommendation to improve the sustainability of the facility	Analysis of the interview results	Informants involved in the development process (local leaders)	McConville & Mihelcic (2007)

2.3 Data collection by distributing questionnaires and observation

The survey employed a cross-sectional approach, gathering data from numerous respondents at a single point in time (Rindfleisch et al., 2008). This approach was used due to the pre-existing construction of shared sanitary facilities in Ciwalengke, rendering longitudinal assessment is not feasible. The questionnaire was created to encompass six of the eight indicators and one of the three sustainability aspects outlined in the UNICEF Sustainability Checks (2017). Responses were acquired from a representative of each chosen home. The sample size was calculated with the Michael and Isaac formula (Isaac & Michael, 1995). A minimum sample of 129 households was necessary, based on a total population of 4,407 households in Ciwalengke. Alongside the household survey, two UNICEF Sustainability Checks indicators (I.2 and I.7 in Table 2) and two sustainability factors (F.2 and F.3 in Table 2) were evaluated via direct field observation. Table 2 presents a comprehensive list of the UNICEF Sustainability Checks indicators together with their accompanying survey questions. This study seeks to deliver a thorough assessment of shared sanitation conditions and

sustainability performance in Ciwalengke through the integration of questionnaire responses and direct observations.

Table 2. Indicator of UNICEF Sustainability Checks and the corresponding question

No.	Focus Area	Indicator	Question/approach
I.1	Open Defecation Status	Proportion of the population that is free from open defecation and complies with the national open defecation free (ODF) standard	Do you always defecate in private toilet or shared sanitation facilities?
I.2		Proportion of open defecation that has been demonstrated not to take place	Observation
I.3	Sanitation Facility Usage	Percentage of households with access to private toilet or latrines (not communal)	Do you usually use shared sanitation facilities?
I.4		Percentage of households with access to shared toilet or latrines (communal)	
I.5		Percentage of households that built a new private latrine in the last year and are still using the latrine	Did you build a toilet latrine in the last year at home?
I.6		Percentage of households that renovated their latrines in the last year	Are you renovating your latrine/toilet in the last year?
I.7	Handwashing Facilities and Behavior	Percentage of households with functioning handwashing facilities with soap and water located adjacent to latrines and evidence of use	(Observation)
I.8		Percentage of household respondents who always wash their hands with soap when it matters (after defecation)	Do you wash your hands after defecation?
F.1	Prioritization of sanitation at community expense	Percentage of households that say sanitation is a high priority	Is it important to pay for public toilets or buy toilet cleaner?
F.2	The existence of community institutions in strengthening social or hygiene norms	Percentage of communities with active committees/organizations/individuals (regular meetings and concrete actions) and conduct sustainable sanitation campaigns	(Observation and interview)
F.3	Adequate operation and maintenance of public toilet	Percentage of toilets in good condition (including through visual inspection).	(Observation)

2.4 Data Collection by interview

We conducted interviews guided by the sustainability assessment framework proposed by McConville and Mihelcic (2007). This paradigm assesses sanitation systems based on five sustainability variables, each analyzed through five life-cycle stages of sanitation facilities, culminating in a total of 25 evaluation components. A code was assigned to each element (e.g., 1.1) as seen in Table 3. We evaluated each component on a scale from 0 to 4, according to the completion of four established checklists. Each checklist consists of a

series of leading questions tailored to align with local community conditions and the attributes of the shared sanitation facilities being examined. The questions were posed to key informants engaged in the planning, building, or execution of the shared sanitation facilities. Table 3 presents an overview of the evaluation framework and scoring structure developed by McConville and Mihelcic (2007).

Table 3. McConville & Mihelcic Sustainability Assessment Matrix (2007)

Life Cycle Stage	Sustainability Factor					Maximum Score
	Sociocultural respect	Community Participation	Political Cohesion	Economic Sustainability	Environmental Sustainability	
Need Assessment	1.1	1.2	1.3	1.4	1.5	20
Conceptual Design and Feasibility Study	2.1	2.2	2.3	2.4	2.5	20
Design and Action	3.1	3.2	3.3	3.4	3.5	20
Planning	4.1	4.2	4.3	4.4	4.5	20
Implementation	5.1	5.2	5.3	5.4	5.5	20
Operation and Maintenance	5.1	5.2	5.3	5.4	5.5	20
Maximum Score	20	20	20	20	20	100

3. Result and Discussion

3.1 Respondent demographics

Figure 3 presents the demographic information of the respondents.

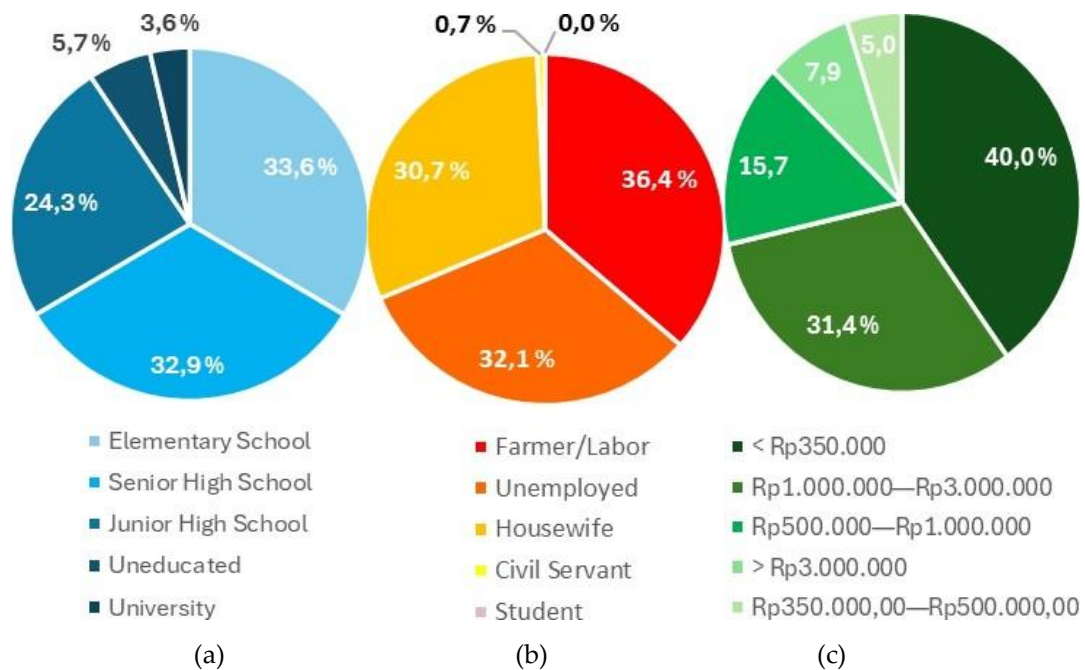


Figure 3. Demographics of respondents based on (a) education level, (b) type of employment, and (c) income per month

The majority of respondents attained schooling just at the primary level, with a scant number achieving further education. One-third of the respondents are employed as agricultural workers or laborers, but the remainder are either unemployed or engaged in domestic duties. The income of most respondents was exceedingly low, with about 7.9% earning above the regional minimum wage (Rp 3,500,000).

3.2 Instrument adjustment to suit local aspects

Several modifications were implemented in the assessment framework to align with local contextual conditions. The adjustments were essential owing to the community's characteristics, seasonally stable, and politically stable traits, alongside the straightforward nature of the sanitation construction program, the informal hierarchy between foremen and masons, and the limited structure of community representations. Table 4 shows modifications to the instruments.

Table 4. Instrument adjustment to local context

No.	Local Context	Adjustment Points	Adjustment
1.	Community conditions that are settled, unaffected by the seasons, and stable in political context.	1.1.A, 1.3.A	The community remains stationary; hence, the indicators of migration and seasonal variations are solely determined by recognising water-utilizing activities. The geographical identification of politics and conflict was streamlined into an inquiry regarding sanitation practices at the district or village level.
2.	A simple shared sanitation facility construction program without any in-depth analysis.	1.2.A, 1.5.B, 1.5.C, 2.5.D	Shares sanitation facilities program is being done without a feasibility study budget so that the assessment of community participation in development is simplified to the needs related to sanitation and clean water. Identification of potential environmental damage is sufficient from potential pollution from toilet waste without the need for water contamination analysis, water discharge, and disruption to the ecosystem.
3.	A Simple Hierarchy of Foreman and Masons	3.1.A, 4.1.A	The masons in Ciwalengke are simple in structure and will follow the direction of the foreman. If the appointment of a foreman and the involvement of the foreman in the determination of the construction schedule are carried out, the assessment related to understanding the project structure and the involvement of the builders is already fulfilled.
4.	Local Leaders as Community Representative	3.2.C, 4.2.A, 5.2. D.	The local leaders are already considered representatives of the Ciwalengke community. Assessments related to involvement such as making work plans, managing shared sanitation facilities, and resolving problems during development will be fulfilled if they have already been done involving local leaders.

3.3 UNICEF Sustainability Checks Assessment

The UNICEF Sustainability Checks assessment uses 8 indicators (Table 5). The incidence of open defecation in Ciwalengke is comparatively low, suggesting that significant further measures are unnecessary.

Table 5. Result of UNICEF Sustainability Checks for cores service level indicators

No	Indicator	Percentage (%)	Target (%)	Comment
1	Proportion of the population that is free from open defecation and complies with the national open defecation free (ODF) standard	95,71	100	Although the national target of zero open defecation target has not yet been achieved, Ciwalengke's open defecation free (ODF) rate is already higher than the national average of 94.31%.
2	Proportion of open defecation that has been demonstrated not to take place	93,2	100	There are children who were identified to perform open defecation during the 6 days of observation.
3	Percentage of households with access to standard toilet or latrines (not communal)	64,28	-	Most Ciwalengke residents no longer use shared sanitation facilities. However, there are still many residents who still use shared sanitation facilities even though it is not in good condition.
4	Percentage of households with access to shared toilet or latrines (communal)	35,72	-	
5	Percentage of households that built a new latrine in the last year and are still using the latrine	3,7	-	Ciwalengke residents still care about sanitation facilities. Some houses that have enough money, built toilets or renovated their old toilets. However, most of the toilets built are not equipped by the construction of septic tanks.
6	Percentage of households that renovated their latrines in the last year	3,7	-	
7	Percentage of households with functioning handwashing facilities with soap and water located adjacent to latrines and evidence of use	0		There are no hand-washing facilities. The soap used by residents when doing defecation activity was brought from home.
8	Percentage of household respondents who always wash their hands with soap when it matters (after defecation)	56,83		Although there are no handwashing facilities, some residents bring soap before doing activities in the toilet.

Current sanitation awareness levels, along with the significant percentage of homes utilizing private toilets, indicate that additional construction of sanitation facilities is not a priority. Alongside the primary service level indicators, sustainability criteria from the UNICEF Sustainability Checks were also examined. Table 6 displays the outcomes of the sustainability factor evaluation. Although the construction of new shared sanitation facilities in Ciwalengke is not urgent at the moment, greater attention must be directed to the operation and maintenance of existing facilities. Only 12.5% of the shared sanitation facilities are in satisfactory condition, and management institutions exists only in 12.5% of cases. The McConville and Mihelcic (2007) approach was utilised to evaluate the sustainability performance of each shared sanitation facility in Ciwalengke, complementing the findings of the UNICEF Sustainability Checks.

Table 6. Result of UNICEF Sustainability Checks for cores service level indicators

No	Focus Area	Indicator	Findings
1	Prioritization of sanitation at community expense	Percentage of households that say sanitation as a high priority	30,43 %
2	The existence of community institutions in strengthening social or hygiene norms	Percentage of communities with active committees/organizations/individuals (regular meetings and concrete actions) and conduct sustainable sanitation campaigns	Only 1 of 8 public toilet
3	Adequate operation and maintenance of public toilet	Percentage of toilets in good condition (including visual inspection).	12,5%

3.4 *McConville and Mihelcic' Sustainability Assessment Tool*

The sustainability assessment by McConville and Mihelcic (2007) was implemented at four shared sanitation facilities in Ciwalengke. These facilities were chosen due to the availability of knowledgeable key informants with expertise in the planning and building procedures. Other publicly shared sanitation facilities were omitted from the analysis due to the lack of informants knowledgeable about the facilities, especially during the requirements assessment and pre-construction phases. This study evaluated the shared sanitary facilities (MCK) situated in RW 08, RW 09, RW 10, and RW 11. The results of the sustainability evaluation for the MCK situated in RW 08 are illustrated in Figure 4. This facility was established by a local Muslim cleric to replace a previously semi-open public toilet deemed visually unsuitable for the vicinity of the mosque. Nevertheless, the construction process was executed swiftly and without previous engagement with users. As a result, the RW 08 MCK obtained low ratings in the needs assessment and conceptual design phases. Notwithstanding these deficiencies, the RW 08 MCK advantages from its adjacency to the mosque, which offers a comparatively transparent management framework and financial arrangement. Nonetheless, the sustainability aspect concerning political consensus received a low score. This illustrates the absence of consensus during the construction phase, especially when the local Muslim cleric demanded that the mosque and its users cover half of the construction expenses after the facility's completion. The mosque management and the nearby neighborhood association rejected this proposal, leading to the initiator incurring all building expenditures to date.

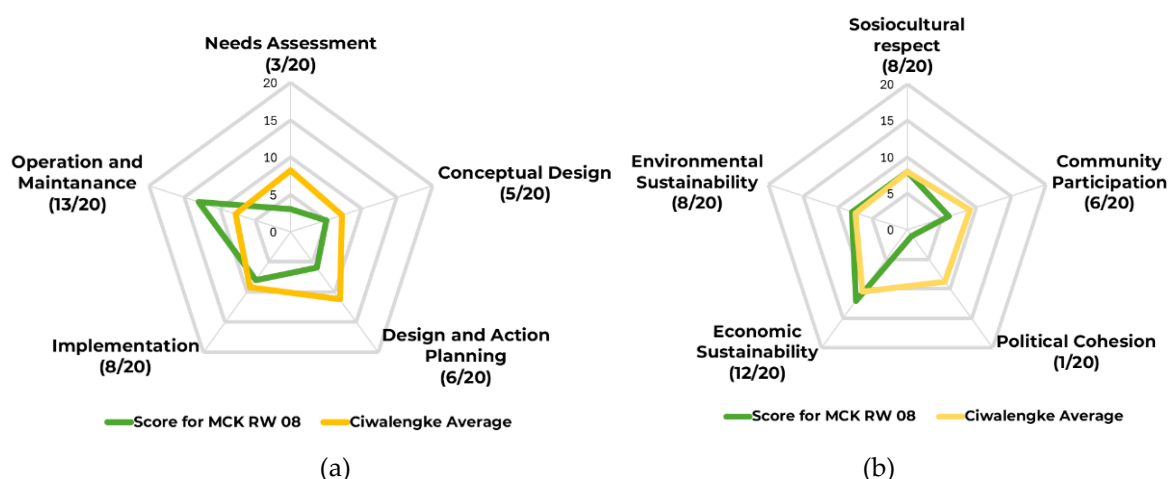


Figure 4. RW 08 MCK sustainability analysis based on (a) life cycle and (b) sustainability factors

The results of the sustainability evaluation for the MCK in RW 09 are illustrated in Figure 5. The NGO Mercy Corps created this facility in partnership with the previous leader of RW 09, who was also associated with Mercy Corps. MCK RW 09 received a superior sustainability score compared to the average shared sanitation

facility in Ciwalengke, especially in the needs assessment and operation and maintenance phases. The elevated score in the needs assessment phase indicates Mercy Corps' meticulous site selection and its attentiveness to the requirements articulated by the RW head. Likewise, the operation and maintenance phase received a quite fair assessment, since the previous RW head persisted in facilitating repair and maintenance endeavors even after he stepped down. MCK in RW 09 excelled in community engagement and political agreement regarding sustainability factors. This is due to the facility's development being grounded in well-defined community needs, accompanied by ongoing participation and dialogue during both the construction and operational phases. Furthermore, robust coordination and constructive interactions among the NGO, RW and RT leaders, and the village administration fostered a conducive institutional framework for the facility's survival.

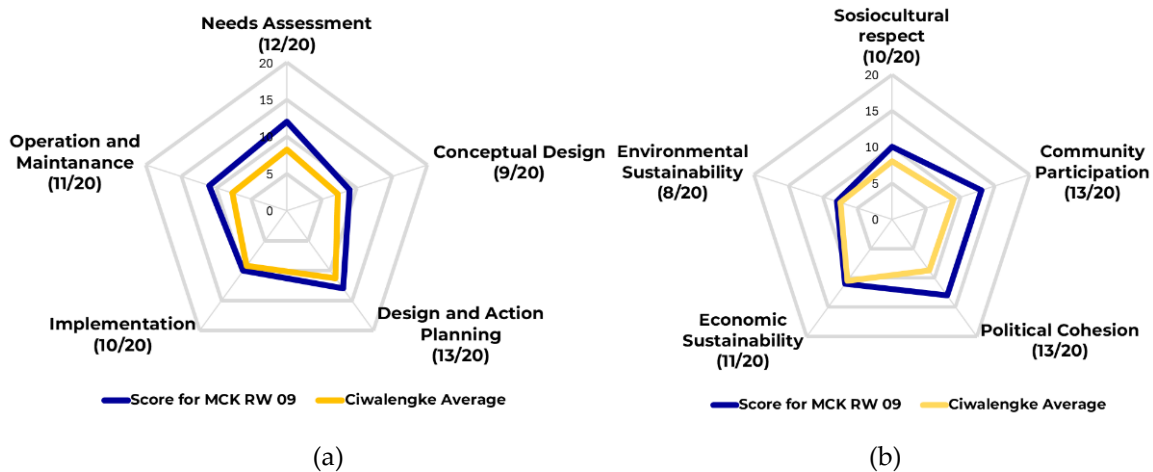


Figure 5. RW 09 MCK sustainability analysis based on (a) life cycle and (b) sustainability factors

The results of the sustainability evaluation for the MCK situated in RW 10 are illustrated in Figure 6. This facility was established in 2021 via a Village Assistance Program. The operation and maintenance score for this MCK is deficient, mostly due to the lack of a clearly identified entity responsible for its management, leading to insufficient routine maintenance and repairs. Notwithstanding the lackluster performance post-construction, the pre-operational phase exhibited considerable institutional backing. The local neighborhood head and the village head exhibited effective coordination, with the village head personally overseeing building progress and publicly inaugurating the facility. Nevertheless, after the inauguration, the responsibility for the MCK was neither successfully transferred nor institutionalized, resulting in inadequate maintenance of the facility under successive local neighborhood leadership.

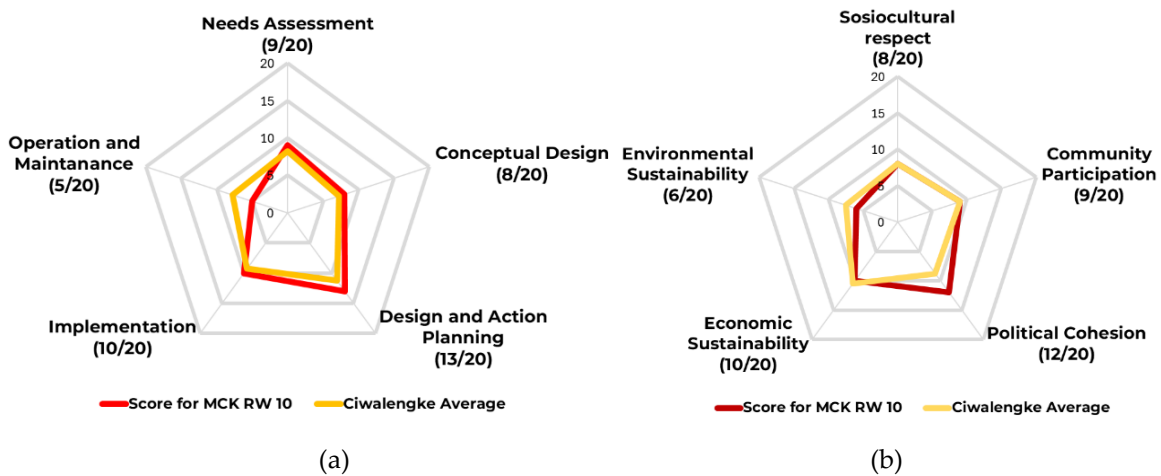


Figure 6. RW 10 MCK sustainability analysis based on (a) life cycle and (b) sustainability factors

The sustainability assessment results for the RW 11 MCK are presented in Figure 7. This facility is located relatively far from residential areas, which has contributed to limited use and poor maintenance.

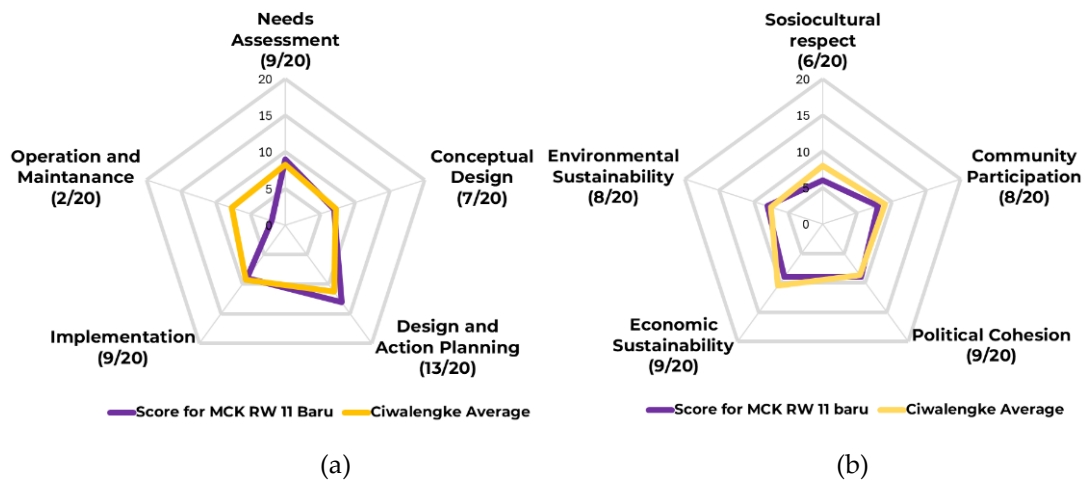


Figure 7. RW 11 MCK sustainability analysis based on (a) life cycle and (b) sustainability factors

As a result, the operation and maintenance scores are very low, despite the facility having been constructed as recently as 2017. Nevertheless, the overall sustainability factor score for the RW 11 MCK is not particularly low, as the assessment indicates that the three dimensions of sustainability—social, economic, and environmental—were reasonably considered during the planning and construction stages.

An overall sustainability assessment was conducted by calculating the average scores across all assessment components for the four MCKs analyzed. The results of this aggregated sustainability assessment are presented in Figure 8. Overall, the MCKs in Civalengke achieved less than half of the maximum possible score in nearly all sustainability aspects.

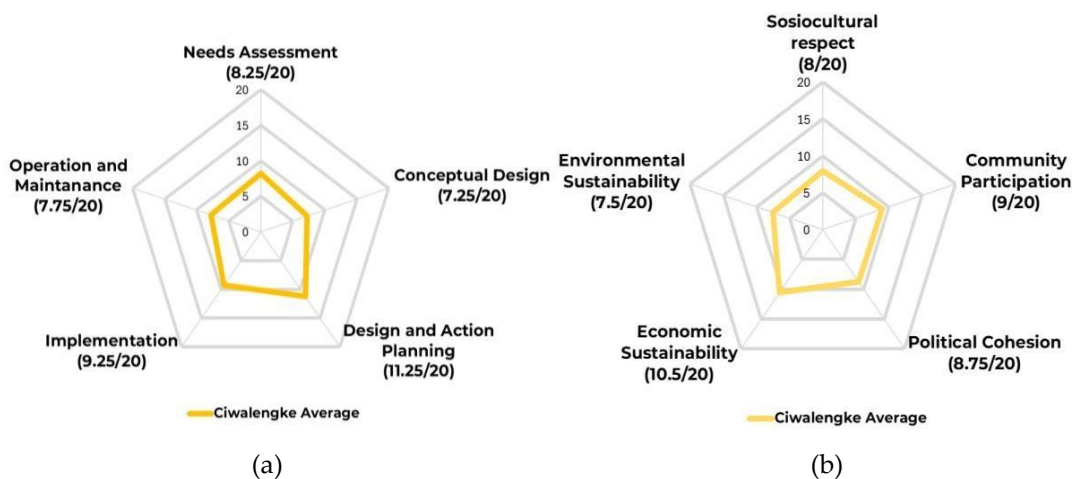


Figure 8. Analysis of MCK in Civalengke based on (a) life cycle and (b) sustainability factors

The McConville and Mihelcic (2007) assessment framework reveals several limitations that are not fully captured in the resulting sustainability scores. For example, MCKs equipped with septic tanks, such as the RW 09 facility, do not appear substantially different in environmental sustainability scores from facilities without septic tanks, such as MCK RW 10. Moreover, the instruments do not accommodate fecal sludge treatment that is crucial for safely managed sanitation. Thus, environmental assessment using the two instruments are inadequate to capture the full environmental protection from shared sanitation facilities. Similarly, economic sustainability is not clearly differentiated in the sustainability matrix: MCK RW 08, which has an established financial arrangement for operation, received a score comparable to MCK RW 10, despite clear differences in financial management practices. These findings suggest the need to distinguish sustainability factors related to the operational phase from those associated with the overall life cycle of sanitation facilities.

Despite these limitations, the assessment highlights several important insights. The results indicate that shared sanitation programs must address all stages of development—from needs assessment and design to operation and maintenance—since sustainability scores across most stages remain below half of the maximum

value, with the exception of design and work planning. Similarly, attention must be given to all sustainability dimensions, as most factors scored below half, except for economic sustainability.

When considered alongside the results of the UNICEF Sustainability Checks, the findings suggest that Ciwalengke does not currently require the construction of additional MCK or toilet facilities. Instead, the McConville and Mihelcic (2007) framework can be more effectively applied to guide renovation efforts, capacity upgrades, or improvements to existing facilities. Moreover, the assessment results can inform decisions regarding the prioritization of wastewater treatment infrastructure—such as communal septic tanks—which may represent a more urgent sanitation intervention for Ciwalengke than the construction of new toilets.

4. Conclusion

This study assessed the sustainability of shared sanitation facilities in Ciwalengke using adapted versions of the McConville and Mihelcic (2007) framework and the UNICEF Sustainability Checks. The assessment instruments were contextualized to reflect local conditions, including the characteristics of the community, the simplicity of the MCK assistance program, informal construction hierarchies, and the roles of local leaders as community representatives. The findings indicate that the overall sustainability of public sanitation facilities in Ciwalengke remains low. Results from the McConville and Mihelcic (2007) assessment show that most MCKs scored below half of the maximum possible value across nearly all sustainability aspects. In contrast, the UNICEF Sustainability Checks reveal that public MCK services and community hygiene behavior are relatively strong, with several indicators exceeding national averages. Despite this, significant gaps remain in the operation, maintenance, and management of public sanitation facilities. The main strength of MCK development in Ciwalengke lies in the work planning stage, where multiple stakeholders were involved. However, a critical weakness is the limited involvement of community representatives during the design stage, which has implications for long-term ownership and sustainability. Based on these findings, the study recommends strengthening sanitation facility management by integrating clear operational and maintenance arrangements from the earliest planning stages through long-term operation. These measures are essential to ensure sustainable sanitation services and to improve the long-term functionality of shared sanitation facilities in Ciwalengke. We also concluded that the combination of the two instruments applied in this study are suitable to be adopted to Indonesian context, but may require additional indicators such as the presence of septic systems or faecal sludge treatment and greater emphasis on financial aspects during life project cycles.

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