

Original Research Article

A Study on the Relationship between Community Participation and the Improvement of Slum Settlement Quality in Medan City

ABSTRACT

This study examines the environmental cleanliness and community participation in addressing slum settlement issues in Area 33 of Belawan II Sub-District, Medan Belawan, Indonesia. The findings reveal poor drainage conditions due to blockages caused by waste, leading to stagnant water in the neighborhood. Additionally, low community participation is observed, influenced by factors such as lack of awareness and minimal involvement in environmental improvement initiatives. Through socialization and education programs, community awareness can be raised, fostering greater engagement in environmental management. Utilizing available land and maximizing community participation are identified as key strategies to address threats such as flooding and disease outbreaks. Based on SWOT analysis, prioritized strategies include enhancing community participation, utilizing education programs, and maximizing available land to create sustainable and habitable environments. This research underscores the importance of government-community collaboration and the need for education initiatives to improve environmental conditions and community well-being in slum settlements.

Keywords: Slum settlement, Community participation, Environmental cleanliness, SWOT analysis, Sustainable development

I. INTRODUCTION

Every year, the dominance of urban population in Indonesia over the total population increases. The growing urban population brings about several social, economic, and environmental challenges in these urban areas. According to Worldometers in 2023, the urban population of Indonesia reached 163.9 million people, or 59.1% of the total population of 277.5 million. This figure increased by 0.8% from 160.7 million people in 2022, representing 58.3% of Indonesia's total population of 275.5 million.

As urban populations expand, the demand for housing increases accordingly. Housing and settlements become a significant concern in urban areas, not only in terms of land availability and pricing but also in meeting the community's need

for adequate housing. The competition for housing becomes intense, both among incoming residents and indigenous populations in those areas. Limited land in city centers exacerbates the housing disparity, particularly for low-income communities, in accessing decent housing. In efforts to meet housing needs, low-income communities often resort to renting houses in central areas close to their workplaces, resulting in uncontrolled building density and the emergence of slums or informal settlements.

The NUSP Program (Upgrading and Shelter Project of Neighborhoods) policy, issued by the government, aims to enhance existing urban infrastructure and reduce the prevalence of slums. The objective of the NUSP activities is to improve housing quality, the functionality of facilities and infrastructure, and public utilities in slum areas. This program is implemented independently and sustainably through collaboration between the government, communities, and private enterprises, focusing on meeting the needs of the urban poor.

The NUSP program has established strategies and methods aligned with national policies and strategies for addressing slum settlements to improve the environmental quality and slum areas. Implementation strategies and approaches for NUSP programs/activities are directed towards strengthening the capacities of local governments and communities, raising awareness and community involvement in addressing slum settlements, and establishing slum management institutions at central and regional levels. The development process through NUSP begins in neighborhoods identified as "nuclear spot areas" with slum conditions, and subsequently expands to other areas within the same neighborhoods and eventually across the entire city/district (National Management Consultant NUSP, 2014).

Covering an area of 265.10 hectares, Medan City is the capital of North Sumatra Province and has evolved into a vital economic and regional hub on Sumatra Island. Medan is also the third-largest city in Indonesia after Jakarta and Surabaya, yet it harbors numerous slum areas, negatively impacting economic, social, and cultural environments.

According to the Mayor of Medan's Decision in 2022, there are five priority areas for improving the quality of slum settlements and housing in Medan City. These areas include the Old Town area in the Medan Labuhan District, specifically in Pekan Labuhan Village; Belawan II area in the Medan Belawan District, particularly in Belawan II Village; the Chinese Town Site area in the Medan Marelan District, specifically in Paya Pasir Village; and the Fishermen's Village area in the Medan Labuhan District, specifically in Nelayan Indah Village. Among these areas, Belawan II, located in the Belawan District, has the highest slum index.

Environmental issues in settlements indicate that communities are indifferent to their surroundings. Participating in addressing slum settlement environments can provide an understanding of various options for resolution. A well-maintained environment can also influence its inhabitants positively. Community participation becomes most effective when the community takes over environmental management. Furthermore, community participation serves to

regulate government policies; in this case, communities play a role in urban planning regulation (Yazid & Alhidayatillah, 2017).

According to previous research, as stated by Beby S. D. Banteng (2015) in the Analysis of the Success of Community Participation Efforts to Improve the Quality of Slum Settlements in Gorontalo City, the success of the city government in involving community roles and participation in Gorontalo City is influenced by the application of principles of justice and collaborative development by facilitating companions, empowerment institution managers, and accompanying facilitators. The firmness of the city government, community awareness, and public order are crucial. Moreover, community awareness is necessary to maintain environmental and ecosystem balance and preserve facilities built by the government. With the participation of all parties, it is hoped that Medan City will become a comfortable and habitable city capable of addressing urban issues.

With its strategic role as an urban center and its prevalent slum settlement issues, the Medan City area could serve as an appropriate location for research on improving environmental quality and community participation. There has been no previous research examining the relationship between community participation and the enhancement of slum settlement environmental quality in Medan City. This study examines the level of community participation in improving slum settlement quality, the relationship between community participation and sustainable improvement of slum settlement quality, and the opportunities and challenges for communities in improving slum settlement quality.

It is hoped that this research can comprehend the correlation between community participation levels and the handling of settlements, particularly in slum environments, and can be utilized as a reference and knowledge base to identify alternative strategies for enhancing sustainable settlement quality. On a practical level, this research can also provide input or recommendations for providing alternative slum settlement resolution programs by the government through comprehensive strategies based on community participation to improve sustainable settlement quality.

II. Research Method

This research outlines the methodology employed to examine community participation in addressing slum settlements in the Belawan District of Medan. The study adopts a mixed-method approach, which effectively explores phenomena from both quantitative and qualitative perspectives, enabling a comprehensive analysis of the dynamics involved.

The research design is exploratory and descriptive, aiming to identify and analyze factors influencing community participation. The study was conducted over a period of six months, allowing ample time for in-depth data collection and analysis. The research population includes residents of the Belawan District living in slum areas, with samples selected using purposive sampling technique and the Slovin method. This approach ensures that the collected data represent the perspectives of individuals directly involved in slum settlement issues.

Data collection involves a combination of primary and secondary data. Primary data is obtained through questionnaires and in-depth interviews with randomly selected respondents, while secondary data includes analysis of relevant documents and reports from official sources. Integrating both types of data enriches the understanding of the research context.

Research variables are divided into two categories: community participation as the independent variable and slum settlement quality as the dependent variable. This approach allows the study to specifically examine the influence of community participation on efforts to improve settlement quality.

Data analysis is conducted using descriptive statistical techniques for quantitative variables. For qualitative data, content analysis of interviews and observations is performed to gain a deeper understanding of respondents' perceptions and experiences, followed by SWOT analysis to evaluate potentials and barriers in the environment. In conclusion, this research aims to evaluate the effectiveness of community participation in enhancing slum settlement quality and identify supporting factors as well as obstacles in this process.

III. RESULT AND DISCUSSION

3.1 Characteristics of Respondents and Physical Conditions of Slum Settlement Dwellings

This research was conducted on 63 respondents who are family members in Neighborhood 33 of Belawan II Village, Medan Belawan District, Medan City, regarding Community Participation in Addressing Slum Settlements Based on Sustainable Principles. The research location can be seen in Figure 1 below.

Figure 1 Research Location

3.1.1 Characteristics of Respondents

The characteristics of respondents in this study include gender, age, education, occupation, income, number of household members, and domicile origin in terms of both numerical values and percentage distributions of respondent characteristics, as detailed in Table 1 below:

Table 1 Characteristic Respondent Percentage

No.	Characteristic of Respondents	Number	Percentage (%)
1	Gender		
	Female	12	19,0
	Male	51	81,0
2	Age (years)		
	<30 years	5	7,9
	30-40 years	17	27,0
	41-50 years	12	19,0
	51-60 years	9	14,3
	61-70 years	13	20,6
	>70 years	7	11,1
3	Education		
	Elementary School (SD)	10	15,9
	Junior High School (SMP)	24	38,1
	High School (SMA)	28	44,4
	Bachelor's Degree (S1)	1	1,6
4	Occupation		
	Housewife (IRT)	1	1,6
	Teacher	1	1,6
	Farmer	1	1,6
	Livestock farmer	4	6,3
	Trader	6	9,5
	Fisherman	7	11,1
	Driver	7	11,1
	Entrepreneur	8	12,7
	Laborer	28	44,4
5	Income		
	< Rp 2 million	37	58,7
	Rp 2 - 3 million	23	36,5
	> Rp 3 million	3	4,8
6	Number of Household Members		

	<3 people	10	15.9
	3-5 people	40	63.5
	>5 people	13	20.6
7	Domicile		
	Migrant	9	14.3
	Indigenous	54	85.7

Source :Result Data Processed 2023

3.1.2 Characteristics of Dwelling Structures

In this study, data sources were also obtained through research observations on the physical structures of buildings, including roof conditions, wall conditions, air circulation, lighting conditions, and cleanliness conditions. The results of the physical characteristics of dwellings based on the research questionnaire can be seen in Table 2 below:

Table 2 physical characteristics of dwellings

No.	Characteristic of Dwelling Structure	Number	Percentage (%)
1	Building Type		
	Permanent	10	15.9
	Semi-Permanent	53	84.1
2	Land/Building Ownership Status		
	Ownership (Freehold)	0	0
	Building Rights (HGB)	10	15.9
	Other Certificates	53	84.1
3	Has Building Permit (IMB)		
	Yes	0	0
	No	63	100
4	Building Land Area		
	< 50 m ²	28	44.4
	50 – 100 m ²	26	41.3
	100 – 150 m ²	9	14.3
	150 – 200 m ²	0	0
5	Ground Floor Area		
	< 25 m ²	3	4.8
	25 – 50 m ²	28	44.4
	50 – 75 m ²	16	25.4
	75 – 100 m ²	16	25.4

Source: Research Finding (Data analysis) 2023

3.1.3 Characteristics of Building Conditions

Research observations also examined the characteristics of building conditions based on roof conditions, wall conditions, air circulation, lighting conditions, and cleanliness conditions, as shown in Table 3 below:

Table3 Characteristics of Building Conditions

Area	Characteristic of Building Condition	Type	Number	Percentage (%)
Neighborhood 33	Roof Condition	Good	11	17.5
		Moderate	12	19.0
		Poor	40	63.5
	Wall Condition	Good	12	19.0
		Moderate	20	31.8
		Poor	31	49.2
	Air Circulation Condition	Good	34	54.0
		Moderate	18	28.6
		Poor	11	17.5
Lighting Condition	Good	43	68.3	
	Moderate	18	28.6	
	Poor	2	3.17	
Cleanliness Condition	Good	10	15.9	
	Moderate	21	33.3	
		Poor	32	50.8

Source: Research findings (data analysis), 2023

The condition of semi-permanent and permanent houses is predominantly made of wood, zinc, and plywood, with many houses having poor roof and wall conditions, often leaning and leaking. The roof and wall conditions of some semi-permanent and permanent houses can be seen in the following Figures 1 and 2.

Figure 2 House Condition Temporary

Figure 3 Permanent House Condition

3.1.4 Characteristics of Environmental Quality in Slum Settlements

The characteristics of environmental quality in slum settlements are assessments based on observations of each respondent regarding the physical environment. Variables of environmental quality characteristics include roads, building regularity, cleanliness, security, drainage, waste disposal, green open spaces (RTH), firefighting facilities, and natural disaster evacuation routes. The results of research observations on the characteristics of environmental quality in slum settlements can be seen in Table 4 below:

Table 4 Characteristics of Environmental Quality in Slum Settlements

No.	Environmental Quality Characteristic	Type	Number	Percentage (%)
1	Roads	Good	5	7.9
		Moderate	40	63.5
		Poor	18	28.6
2	Building Regularity	Good	5	7.9
		Moderate	58	92.1
		Poor	-	-
3	Cleanliness	Good	1	1.6
		Moderate	9	14.3
		Poor	53	84.1
4	Security	Good	47	74.6
		Moderate	13	20.6
		Poor	3	4.8
5	Drainage	Good	1	1.6
		Moderate	21	33.3
		Poor	41	65.1
6	Waste Disposal	Good	-	-
		Moderate	2	3.2
		Poor	61	96.8

		Good	1	1.6
7	Green Open Spaces (RTH)	Moderate	7	11.1
		Poor	55	87.3
		Good	62	98.4
8	Firefighting Facilities	Moderate	-	-
		Poor	1	1.6
		Good	-	-
9	Natural Disaster Evacuation Routes	Moderate	1	1.6
		Poor	62	98.4

Source: Research findings (data analysis), 2023

In this study, data were also collected based on observations directly assessed according to the conditions in Neighborhood 33. In Table 4, the majority of road conditions are moderate, mainly consisting of concrete pavement, but there are still some areas with wooden road surfaces. The condition of neighborhood roads also poses an environmental problem because during high tides, these roads become flooded. Residents hope these roads can be elevated to prevent water from entering their homes.

The cleanliness condition is poor, influenced by both community initiatives and inadequate waste disposal facilities. Improving cleanliness conditions is crucial for the area's image and the health of its residents.

The drainage condition in Neighborhood 33 is poor in terms of cleanliness, water flow, and the width of the drains. This is due to the drains being clogged with waste, resulting in stagnant water on neighborhood roads.

Gambar 4.5 Kondisi Jalan Lingkungan Berupa Perkerasan Beton

Figure 4 Road Environment Condition

The cleanliness condition in Neighborhood 33 is deemed poor, influenced by the lack of community initiative and inadequate waste disposal facilities. Enhancing cleanliness is imperative as it significantly impacts the area's image and the health of its residents.

Figure 5: Cleanliness Condition in Neighborhood 33

The drainage condition in Neighborhood 33 is poor, both in terms of cleanliness, smoothness of water flow, and the width of the drainage. This is due to the drainage channels being clogged with debris, preventing water from flowing and causing the neighborhood streets to flood.

3.2 Level of Community Participation

Social characteristics (indicator 1) consist of 7 questions regarding social cohesion among neighbors, security, conflict vulnerability, community satisfaction with living in the neighborhood, welfare/cost sufficiency, community roles, and compliance. The community participation indicator comprises 10 questions about the stages of community participation, including decision-making, program implementation, program utilization, and program evaluation. Thus, the distribution of categories for each indicator can be seen in Table 5 below:

Table 5: Community Participation Categories

No	Community Participation Level	Number	Percentage (%)
Indicator 1: Community Perception of Housing Environment Conditions			
1	Low	39	61.9
	Moderate	20	31.7
	High	4	6.3
Indicator 2: Decision Making			
2	Low	41	65.1
	Moderate	16	25.4
	High	6	9.5
Indicator 3: Program Implementation			
3	Low	36	57.1
	Moderate	22	34.9
	High	5	7.9

	Indicator 4: Program Utilization		
	Low	39	61.9
4	Moderate	18	28.6
	High	6	9.5
	Indicator 5: Program Evaluation		
	Low	38	60.3
5	Moderate	19	30.2
	High	6	9.5

Source: Research findings (data processing), 2023

Reviewed from the community participation based on community perceptions of housing environment conditions (indicator 1), the research results show that out of 63 respondents, 39 individuals (61.9%) have a low level of social cohesion, 20 individuals (31.7%) have a moderate level, and 4 individuals (6.3%) have a high level. Thus, the majority of respondents have a low level of social cohesion (61.9%).

Reviewed from community participation based on decision-making (indicator 2), the research results show that out of 63 respondents, 41 individuals (65.1%) have a low level of participation in decision-making, 16 individuals (25.4%) have a moderate level, and 6 individuals (9.5%) have a high level. Thus, the majority of respondents have a low level of participation in decision-making (65.1%).

Reviewed from community participation based on program implementation (indicator 3), the research results show that out of 63 respondents, 36 individuals are at a moderate level, and 5 individuals (7.9%) have a high level of participation in program implementation. Thus, the majority of respondents have a low level of participation in program implementation (57.1%).

Reviewed from community participation based on program utilization (indicator 4), the research results show that out of 63 respondents, 39 individuals (61.9%) have a low level of participation in program utilization, 18 individuals (28.6%) have a moderate level, and 6 individuals (9.5%) have a high level. Thus, the majority of respondents have a low level of participation in program utilization (61.9%).

Reviewed from community participation based on program evaluation (indicator 5), the research results show that out of 63 respondents, 38 individuals (60.3%) have a low level of participation in program evaluation, 19 individuals (30.2%) have a moderate level, and 6 individuals (9.5%) have a high level. Thus, the majority of respondents have a low level of participation in program evaluation (60.3%).

To determine the level of community participation in addressing slum settlements in Neighborhood 33, it can be obtained from the questionnaire results related to social characteristics and community participation (Appendix 1). From these respondent results, the total scores from 17 categories/items of statements per

respondent are calculated. Then, based on the total score, the participation levels are classified.

3.3 SWOT Analysis

Table 6 : Based on the analysis of internal and external environments, strengths, weaknesses, opportunities, and threats can be identified as outlined in

No.	Internal Factors Strengths	External Factors Opportunities
1	Availability of sufficient land for socio-economic activities development.	Development of Belawan Port which supports livelihood opportunities and income growth.
2	Legal land status under PT. Pelindo ownership for environmental development.	Positive government support in regional development.
3	Native resident status that can be directed towards greater love and care for the environment.	Positive sustainable development programs in slum settlement management.
4	Moderate population density in Neighborhood 33, making environmental issues less complex.	Government cooperation with international organizations in Sustainable Development (SDGs) implementation.
5	Moderate level of slum conditions in Neighborhood 33.	Educational programs for communities regarding slum settlement management to increase environmental awareness.
No.	Internal Factors Weaknesses	External Factors Threats
1	Low community participation in slum settlement management in Neighborhood 33.	Extreme climatic conditions affecting port operations.
2	Poor handling of environmental settlement.	Threat of high tidal flooding.
3	Low community income.	Potential for high ground subsidence.
4	Poor environmental conditions.	Potential for high disease development.

Source: Research data from 2023

3.3.1 SWOT Quadrant

Strategies can be devised by examining opportunities and threats compared to strengths and weaknesses, as demonstrated by using a SWOT diagram that identifies the four quadrants. The results of comparing internal analysis with external analysis of community participation in slum settlement management in Belawan II Sub-District are as follows: $X = \text{total score of strengths (S)} - \text{total score of weaknesses (W)}$ $Y = \text{total score of opportunities (O)} - \text{total score of threats (T)}$ Where: $x = 1.93 - 1.35$ $y = 1.71 - 0.98$ $x = 0.58$ $y = 0.73$

Figure 6 SWOT Quadranta.

In Quadrant I (Progressive Strategy), the general strategy to be pursued is to utilize existing strengths to seize every advantage of the opportunities available. b. In Quadrant II (Diversification Strategy), one can leverage opportunities as a reference to focus activities while avoiding weaknesses. c. In Quadrant III (Change Strategy), efforts should be directed towards minimizing weaknesses to confront every threat. d. In Quadrant IV (Survival Strategy), strengths should be leveraged to confront every threat by creating diversification to generate opportunities.

Based on the SWOT Quadrant diagram, the score for the strength factor is 1.93 and for the weakness factor is 1.35, resulting in a difference of 0.58. Similarly, the score for the opportunity factor is 1.71 and for the threat factor is 0.98, resulting in a difference of 0.73. These difference values can form coordinate points, namely (0.58; 0.73). Thus, the position in Quadrant I (Progressive) is obtained, which is a highly advantageous situation because it combines opportunities and strengths, enabling the utilization of existing conditions for application in the analysis of community participation in slum settlement management with sustainable principles. Therefore, the appropriate strategy for the government to implement in this situation is to support aggressive growth policies (Growth Oriented Strategy), allowing for continuous progress towards maximum advancement.

The research analysis using the SWOT matrix, which combines strengths, weaknesses, opportunities, and threats, provides insights for policy-making based on Strength-Opportunity (SO) Strategy, Weakness-Opportunity (WO) Strategy, Strength-Threat (ST) Strategy, and Weakness-Threat (WT) Strategy.

3.4.2 SWOT Matrix

The SWOT matrix is an analytical tool used to organize strategic factors. This matrix clearly illustrates how external opportunities and threats can be aligned

with internal strengths and weaknesses. It can generate possible strategic alternatives for the community in developing slum settlement areas in Belawan II Sub-District.

Table 7: SWOT Matrix for Slum Settlement Area Development

	Strength (S)	Weakness (W)
Opportunity (O)	SO: Conducting education programs for community on area management and utilizing available land for socio-economic activities and area development to enhance income, supported by the government. (S1, O1, O2, O3, O4, O5)	WO: Increasing community participation in sustainable environmental management by utilizing education programs for community regarding settlement management with government support. (W1, W2, O2, O3, O5)
Threat (T)	ST: Maximizing land availability to anticipate threats of flooding and disease development. (S1, T2, T4)	WT: Enhancing community participation for slum environmental management by improving environmental conditions. (W1, W2, T1, T2)

Source: Research data, 2023 (processed data)

1. **Strength-Opportunity (SO) Strategy:** This strategy involves conducting educational programs for the community regarding area management and utilizing available land for socio-economic activities and area development to enhance income in support of sustainable development with government backing.
2. **Weakness-Opportunity (WO) Strategy:** This strategy focuses on increasing community participation in sustainable environmental management by utilizing education programs regarding settlement management with government support.
3. **Strength-Threat (ST) Strategy:** This strategy aims to maximize land availability to anticipate threats of flooding and disease development in the Belawan II Sub-District.
4. **Weakness-Threat (WT) Strategy:** This strategy focuses on enhancing community participation for slum environmental management by improving environmental conditions in the Belawan II Sub-District.

Strategy 1, which is the Strength-Opportunity (SO) Strategy in the SWOT analysis, involves conducting educational programs for the community regarding area management and utilizing available land for socio-economic activities and area development to enhance income in support of sustainable development with government backing. Educating the community about environmental management is crucial for raising awareness about the relationship between community well-being and the environment. Community participation in environmental management is necessary because informed communities are more likely to engage in solving local environmental issues.

1. Weakness Threat (WT) Strategy:

- Priority: Second
- Description: Enhancing community participation for slum environmental management by improving environmental conditions. One of the principles of sustainable development is to

utilize the community to address its environmental issues. With community participation, sustainable development can be pursued in both socio-economic and environmental aspects.

2. Strength Threat (ST) Strategy:

- Priority: Third
- Description: Maximizing land availability to anticipate threats of flooding and disease development. Government utilization of available land can help communities have more habitable environments with adequate facilities. Available land can be used for waste disposal, public open spaces for socio-economic activities, and provision of clean water sources. Improving poor drainage systems can mitigate the threats of flooding and disease development, creating habitable and sustainable environments.

3. Weakness Opportunity (WO) Strategy:

- Priority: Fourth
- Description: Increasing community participation in sustainable environmental management by utilizing education programs for community regarding settlement management with government support. Education programs for the community regarding environmental management are essential for raising awareness of the relationship between community well-being and the environment. Socializing community involvement in settlement environmental management, especially in slum areas, is crucial. Community participation in environmental management is necessary because informed communities are more likely to engage in solving local environmental issues.

Based on the SWOT analysis results, it is evident that slum settlement development in Belawan II Sub-District has fairly good opportunities and is worthy of development. This is indicated by the total weighted average value of strength and weakness factors (Table 8), which is 3.28, greater than the average value of 2.5. Meanwhile, the total weighted average value of opportunity and threat factors (Table 9) is 2.69, also greater than 2.5.

The best quantitative strategy for slum settlement development in Belawan II Sub-District is to use a diversification strategy in the first quadrant. Despite facing various threats, the slum settlement management program in Belawan II Sub-District still has internal strengths. Therefore, the strategy that should be applied to this slum settlement management program is to utilize or maximize the strengths.

Darmawanti's research (2021) on Slum Settlement Area Management Strategies in Cibangkong Sub-District Based on the Livable Settlement Concept proves that settlement management strategies include improving the quality and maintenance of basic infrastructure, providing financial education, providing business capital, and skills to open businesses/services to improve community welfare, and

establishing collaborations between the government, academia, or experts to develop appropriate management strategies.

V. Conclusion and Recommendations

The level of community participation in managing slum settlement environments in Area 33 of Belawan II Sub-District is still low but significantly affects the quality of settlements. Low participation is influenced by lack of awareness, focus on work, and minimal involvement in environmental improvement programs. Socialization and education of the community are needed to improve the quality of settlements.

The government needs to optimize environmental improvement programs by empowering communities and building communication initiatives between the government and the community. Establishing platforms to convey community aspirations and involving organizational/community sectors in environmental improvement activities can enhance the quality of settlements in Area 33.

References

Central Bureau of Statistics, Medan City, 2022.

Banteng, B. S. D. (2015). Analysis of Community Participation Success in Improving the Quality of Slum Settlements in Gorontalo City. *Jurnal Elektronik*, 6.

Simarmata, D. S., et al. (2021). Community Participation in the City Without Slums (Kotaku) Program to Achieve Sustainable Development. *Jurnal Birokrasi, Kebijakan dan Pelayanan Publik*, 3(3), 343–359.

Yazid, Y., & Alhidayatillah, N. (2017). Community Participation in Environmental Empowerment. *Risalah*, 1–9.