

Post-assessment of the KOTAKU Program to Develop a Slum-Free City in Pancor - East Lombok-West Nusa Tenggara, Indonesia

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Abstract: The gap in urban growth that has led to the formation of slum settlements in several areas has become a significant and controversial development issue. The Indonesian government emphasizes that improving slum areas focuses on 7 aspects: Building Condition, Road Condition, Drinking Water Supply, Drainage, Waste Water Management, Waste Management, and Fire Protection. In urban areas it is handled with the KOTAKU Program. The KOTAKU program is a government initiative that aims to manage slum settlements through an integrated system led by the Regional Government. This involves collaborating with stakeholders to plan and implement solutions, emphasizing community participation. Despite ongoing management efforts, visible improvements in slum areas are still minimal, and new slum settlements emerge every year. The Pancor Village area, Selong District, East Lombok Regency, Indonesia, was identified as a slum area, so the KOTAKU Program was implemented in this area. The KOTAKU program started in East Lombok Regency in 2016 and continues until 2023. This program requires ongoing evaluation and implementation. Effective evaluation of policies and programs is an important component for improvement. This research aims to evaluate regional conditions before and after KOTAKU, assess the success criteria for infrastructure in fighting slums, determine infrastructure priority criteria, and identify sustainable program parameters. Methodologically, it includes the preparation stage which outlines the research steps, data collection through observation, interviews, questionnaires, and documentation, data analysis comparing conditions before and after the program, infrastructure assessment, identification of sustainability criteria, and determining priorities using the AHP method. The study of the infrastructure and facilities in line with the criteria and the requirement for routine maintenance management as the top priority led to the conclusion that the KOTAKU Program is still worthwhile.

Keyword: KOTAKU Program, slum settlements, facilities and infrastructure, slum criteria, AHP method.

I. INTRODUCTION

The flow of urbanization that continues to increase every year, causes many problems. Various problems range from the difficulty of getting a job, uneven urban growth, to the formation of slums in several urban points [1]. This problem, especially slums, is one of the main issues in the Pancor Village area. Selong District, East Lombok Regency.

The solution to this problem is the implementation of the KOTAKU program in Pancor Village. Selong District, East Lombok Regency. The City Without Slums Program (in Indonesia: *Program Kota Tanpa Kumuh/* KOTAKU) is an important government initiative designed to address the challenges posed by slums. The program, led by local governments, in collaboration with various stakeholders, aims to build an integrated system in slum management. When a policy and program is planned or implemented, there is always a demand for accompanying evaluation. No matter how good, great or superior a policy or program is, it will not be perfect without evaluation [2].

The essence of the goal is not only the eradication of existing slums but also the prevention of the emergence of new slums. The focus of the program is on improving residential facilities and infrastructure, the success of which is highly dependent on community awareness and involvement. Namely proactive efforts from residents to implement a cleaner and healthier lifestyle [3].

Areas such as Pancor Village will remain vulnerable to ongoing challenges related to slum environments. This underscores the importance of a comprehensive approach that integrates infrastructure development with strong community participation and behaviour change initiatives to achieve sustainable urban development goals [4].

In planning, implementation until the end of the KOTAKU program, evaluation needs to be carried out. Evaluation is a management component that plays an important role in assessing the effectiveness of a program [5]. Assessment includes the planning process, measuring results and impacts, quality, and determining the overall effectiveness of implementation efforts, especially in the context of regional and urban planning [2].

Therefore, it is necessary to carry out studies aimed at:

1). Evaluate Regional Conditions before and after the Regional Scale KOTAKU Program. 2). Evaluate the suitability of built infrastructure based on success criteria in overcoming slums. 3). Analyze the priority order of criteria for built infrastructure. 4). Parameters/criteria for the success of the current KOTAKU Program that are suitable for use.

II. METHODS

A. Research Location

The research was conducted in Pancor Village, Selong District, East Lombok Regency (see Figure 1).





Figure 1 Map of The Pancor Village Area

B. Research Stages

The research stages are shown in Figure 2. Starting with the preparation stage, data collection stage, data analysis stage until conclusions are obtained.



Figure 2. Flow chart of research stages

To obtain the priority order of criteria, the AHP methodology is used, the data used is primary data obtained from the results of interviews (in-depth interviews), with the Regional Government (relevant OPD), the community, local community institutions that have an understanding of the problems discussed. Followed by filling out a questionnaire for 25 respondents. Data ready to be processed in AHP are the variables of the respondent's assessment of the problem that is the object of research on a numerical scale. The analysis in this research is descriptive qualitative analysis [6]. Analyze aspects of facilities and infrastructure before and after the implementation of the KOTAKU Program. The data that has been collected is then analyzed using descriptive analysis and qualitative techniques, explaining and providing photo documentation of the Regional Scale KOTAKU Program in Pancor Village. There are 7 steps carried out in this research

http://ijses.com/ All rights reserved method, including: 1. Defining the Problem 2. Set Element Priority 3. Synthesis 4. Measure Consistency 5. Calculate Consistency Indels (CI) 6. Calculate the Consistency Ratio (CR) 7. Checking Hierarchy Consistency [7].

The first step in determining element priorities is to make pairwise comparisons, namely comparing the given criteria. The pairwise comparison matrix is filled in using numbers to represent the relative importance of one element to other elements [8]. To obtain overall priority, comparison considerations need to be synthesized. This step is to do the following: Add up the values of each column in the matrix, divide each value of the column by the total of the column concerned to obtain matrix normalization, add up the values value from each row and divide it by the number of elements to get the average value, in making decisions the level of consistency is important to pay attention to because we don't want decisions based on considerations with low consistency with a maximum value of Consistency Ratio (CR) < = 0.1 or 10 % [9].

The things that are done in these steps are: enforce each value in the first column with the relative priority of the first element, the value in the second element column with the relative priority of the second element and so on, the number of each row, the result of adding the rows divided by the relative priority element in question, add up the quotient above with the number of elements present, the result is called I max. *Count* Consistensy Indeks *(CI)* Formula

CR - CI/RI

where:

CR = Consistency Ratio

CI = Consistency Indeks

IR = Indeks Random Consistency

Count Consistensy Rasio (CR) CI = (Lamda maks - n) / n - 1

n = the number of elements

Consistency Random Index List (RI)

Consistency Random Index List (RI) can be seen in Table 1.

TABLE 1. Random	Index Consistency
n	RI
1	0.00
2	0.00
3	0.58
4	0.90
5	1.12
6	1.24
7	1.32
8	1.41
9	1.45
10	1.49
11	1.51
12	1.48
13	1.56
14	1.57
15	1.59

Checking Hierarchy Consistency. If the result of adding the averages is 1, it means the calculation is correct. If the value is



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more or less 1, it means that the calculation is wrong and the calculation must be repeated [9][10].

III. RESULTS AND DISCUSSION

A. Condition of Facilities and Infrastructure Before and After the KOTAKU Program.

The condition of facilities and infrastructure before and after the Kotaku in Pancor Village program can be seen in. Fig. 3 (Condition of the Building), Fig. 4 (environmental road conditions), Fig. 5 (Environmental Drainage Conditions). Fig. 6 (Drinking Water Condition), Fig. 7 (Wastewater Management), Fig. 8 (Waste Management), Fig. 9 (Green Open Space)





The condition of the building according to the standart Figure 3. The Condition of The Building in Pancor Village



Figure 4. The Condition of The Environmental Road in Pancor Village







Figure 6. Condition of clean/drinking water piping



Figure 7. The Condition of Waterwaste Management in Pancor Village



Figure 8. The Condition of Waste ter Management in Pancor Village



Figure 9. The Condition of Green Open Space in Pancor Village

B. Conformity of Built Infrastructure with the Criteria for the Settlement Environmental Management Plan

The suitability of the built infrastructure is analyzed based on the criteria and indicators set by the Ministry of Public Works with Regulation No.14/PRT/M/2017 concerning Building Requirements. So this research resulted in additional indicators, namely Green Open Space (RTH) and Maintenance Management for the implementation of the KOTAKU Program, as shown in Table 2.

TABLE 2. Slum Criteria and Ir	idicator
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No	Slum Criteria	Scuare Indicators Based on PUPR Minister Regulation No. 14 0f 2018
1	Building	- Building resilience
1	Condition	- sufficient living area - residential security
	Neighborhood	- has a width of 1.5 meters
2	Road	- has roadside water channels
		- has a flat road surface
	Environmental	- Able to channel water runoff without causing
	Drainage	puddles
3		- Availability of facilities for complementary
		drainage
		 There is routine drainage maintenance
	Provision of	- Availability of safe access to drinking water
4	Clean/Drinking	 Not fully drinking water needs
	Water	- Water is easy to get
5		- Garbage carts available



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	Waste management	 Separating waste by sorting Availability of rubbish dump There is rubbish collection There is waste transportation There is waste processing
6	Waste Water Management	 Waste water management according to technical standards Facilities and infrastructure in accordance with technical requirements Filled with wastewater disposal sites
7	Fire Safety	 Availability of hydrants There is road access Building for fire Availability of fire extinguishers Pump car available Availability of ladder car

C. Priority Order of Criteria Using the Analytical Hierarchy Process (AHP) Method

The Kotaku program made facilities and infrastructure better, but when the program was finished, the facilities and infrastructure that had been built were not maintained, even though the responsibility had been given to Pancor Village, because there were no maintenance costs. Handling is carried out based on a priority scale using the AHP method, referring to the Slum Criteria and the indicators are shown in Table 1. The comparison scale based on survey results, questionnaires and observations is shown in Table 3.

TABLE 3. Pairing Criteria Matrix

Nei	Critoria	Congustion Scale							Critterie										
1	Building Cendines		1	ÿ.	4	i.		1	1	1	3	1		1		\overline{T}			Neighberhood Best
- 2	Condition			7	4		4	3	1	4	2		4			7			Draterga
3	Boildag Cendition			2	4			1	1	ï	-1	1	.4	1		+	1		Case Designer Water
4	Building Condition			7	4	5.81	4	3	1	4	2	1	4	1	6	7			Water
. 5	Builder			+		1			1	1	1	5	4	1		+	1		Water Water
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12	Rand	3	4	7	4	1	4	3	1	1	2	1	4	1	6	7		1	Management
15	Road		1	7	4	3	4	2	1	1	- 2	1	4	1	16	7	1	2	Fire Bellety
34	Rand			7			4	2	1	1	2		4		0	\mathbf{T}		1	Space (KTH)
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13	Managaman		1	7	4	1		1	1	1	2	1	4	1.1	4	7			Managemont
34	Fice Safety	1		1	4	1	4	3	1	-1	2	1	4	1	0	7			Space (KTH)
25	For Debry			2	4	1		1	1	1	- 2	1	.4	1		7			Manaperson
34	Gassie Opan Status (K.TH)			1					1	1	1	1	4	1		7			Matormanute

This study added the criteria for slums, namely green open space and maintenance management obtained from the results of questionnaires, interviews and observations. Furthermore, by giving a questionnaire and interview, the results of the pairing matrix (Table 3), the comparison scale and the weighing decision matrix based on the eigenvector (Table 4) and the results of the weighting of the criteria (Table 5). Pairwise comparisons shown in Fig. 10.

Criteria	Buildi ng Condi tion	Neighbor hood Road	Environm ental Drainage	Provision of Clean/Dri nking Water	Waste Water Manage ment	Wante manage ment	Fire Saf ety	Gre en Ope n Spa ce (RT H)	Mainten ance Manage ment
Building Condition	1	2,00	2,00	1,00	5,00	7,00	1,00	0,20	0,17
Neighbor hood Road	0,50	3	1,00	1,00	7,00	3,00	1,00	0,33	0,14
Environm ental Drainage	0,50	1,00	1	1,00	1,00	2,00	0,50	0,17	0,14
Provision of Clean/Dri nking Water	1,0	1,00	1,00	3	2,00	5,00	1,00	0,25	0,14
Waste Water Managem ent	0,20	0,14	1,00	0,50	1	2,00	0,33	0,14	0,14
Waste managem ent	0,14	0,33	0,50	0,20	0,50	1	1,00	0,25	0,20
Fire Safety	1,00	1,00	2.00	1,00	3,00	1,00	- in 1	0,3	0,17
Green Open Space (RTH)	5,00	3,00	ð.00	4,00	7,00	4,00	3,00	1	1,00
Maintena nce Managem ent	6,00	7,00	7.00	7,00	7,00	5,00	6,00	1,00	1

TABLE 4. Decision Determination Matrix based on Eigen Vector

TABLE 5. Ranking Results Criteria

	Criteria	Prosentase	Rangk	Information
1	Maintenance management	33,4%	1	
2	Green open space	24,4%	2	
3	Environmental DrainageBuilding conditions	9,8%	5	
4	Environmental road	7,6%	3	1
5	Supply of clean water/ drink	7,0%	7	
6	Fire safety	6,8%	8	
7	Environmental drainage	4,7%	9	
8	Waste management	3,2%	4	
9	Wastewater management	3,2%	6	



Figure 10. The Condition of Green Open Space in Pancor Village Figure

Based on an evaluation of the achievement of infrastructure for the implementation of the Kotaku program through the direct observation method is known as follows: 1). Building Conditions: Before the Kotaku Program the building conditions in Pancor Village were very irregular and unfit for habitation, after the Kotaku program the condition of the building could be regular, clean and livable, but there were also those that were still irregular due to the absence of costs



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for maintenance. 2). Environmental Road: Before the Kotaku Program, the condition of the environment is very dirty and damaged, after there is a city road, environmental roads become neat, clean, but after the program activities are completed, there is an unnoticed environment. For environmental accessibility has been achieved. But requires funds for maintenance. 3). Environmental Drainage: Before the existence of the Kotaku program the environmental drainage in Pancor Village was very dirty, inundated because of a lot of garbage in the drainage channel, after the Kotaku environmental drainage program, the Pancor Village, the channel was widened, clean, but when the program was completed, several months later the channel again inundated, many greetings in the drainage channel. From all RTs that are the location of the program implementation, for the average environmental drainage of all RTs achieved, but require maintenance costs. 4). Provision of clean water: Clean water community with the Kotaku program is very smooth, because there are additional piping connections, from all RTs that are the location of the program implementation, for the provision of clean water in settlements, all in each RT have been achieved. There is a need for maintenance from each family head. 5. Management of waste, from all RTs that are the location of the program implementation, for the management of waste in settlements, all are not achieved, and are less achieved, because there are no managing and management costs, the average environmental road is a lot of waste.

6). Waste water Treatment: Before the Kotaku Wastewater Program is discharged into the drainage channel, after the Kotaku program is made waste water disposal facilities, but there are still those who throw waste water into the drainage channel. 7). Fire Safety: The only fire safety is PE, a shopping, because there is no funding for the purchase of hydrants/safety for fire. 8). Green Open Space (RTH), becomes the location of the gathering place of the community, and this place is needed by the community to exercise, relax, culinary and others.

9). Maintenance Management: It is urgently needed by the community for maintenance management, so that the built - built infrastructure is well maintained.

The results obtained from this study were 9 criteria for which the results used the AHP method, which produced the following criteria weight: (1). Maintenance management (33.4%), (1). Green open space (24.4), (3). Building conditions (9.8%), (4). Environmental roads (7.6%), (5). Clean water supply (7.0%), (6). Fire safety (6.8%), (7). Environmental drainage (4,7%), (8). Waste management (3,2%), (9). Wastewater management (3.25%).

D. Evaluation results based on Success Criteria

The success of the KOTAKU Program in Pancor Village with the parameters of good building conditions, habitable, good environmental roads, neat, clean, clean environmental drainage, not stagnant water, good clean water for cooking, bathing, drinking, good waste management good so that rubbish does not accumulate, waste water meets standards, fire safety is available, green open space is of great benefit to the community, and there is routine maintenance management and there are funds for routine and ongoing maintenance.

IV.CONCLUSION

The following conclusions are drawn from a discussion of the data analysis results pertaining to the infrastructure and facilities of the Kotaku program:

- 1). It is imperative that existing buildings and infrastructure have regular maintenance management. The funds necessary to oversee this maintenance must also be in place.
- 2) Applicability of infrastructure constructed in compliance with the requirements of the Residential Environmental Management Plan and Building Requirements (Minister of Public Works Regulation No.14/PRT/M/2017 concerning Building Requirements).
- Results of analysis of the priority order of criteria using the Analytical Hierarchy Process (AHP) method: (1) Maintenance management, (2) Green Open Space (RTH), (3) Building condition, (4) Environmental roads, (5) Clean/drinking water management, (6) Fire safety, (7). Environmental drainage, (8) Waste management. (9). Waste water management. Comparison scale and 9 pairwise criteria, the number of comparisons is 36 comparisons, resulting in a Consistency Ratio (CR) of 7.8%, because the CR condition is below 10%, the calculation results using the Analytical Hierarchy Process (AHP) method are correct.
- 4). The Kotaku program's success criteria remain applicable, but the requirements for green open space and maintenance management are based on the community's actual need for them. The infrastructure and maintenance management facilities required to carry out the program. In order for the finished program to be maintained, maintenance management is actually necessary. This includes organizations, agencies, and groups as well as the significance of maintenance management expenses.

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