The Effect of the “Kampung Bahari” Sustainable Development Program on the Kampong Tambak Lorok Community Semarang

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Abstract. Kampong Tambak Lorok is a place where fishers live on the north coast of Semarang City, facing the problem of tidal flooding and land subsidence. To overcome the issue at Tambak Lorok, the Semarang City Government launched an improvement program with the theme Kampung Bahari. Maritime means life related to the existence of the sea. The program is a medium-term infrastructure improvement. This study aims to determine the effect of infrastructure development through the Kampong Bahari program on the people of Tambak Lorok village. This study used as many as 20 household heads who were selected based on their length of stay in Tambak Lorok Village. The Likert analysis method was used to generate categories and indicators of influence variables based on public perception. Furthermore, the correlation analysis method determines the relationship between infrastructure development results and public perception. The analysis results show that the community strongly supports infrastructure development, especially those relating to the handling of tidal inundation. Communities directly affected by infrastructure development give a higher positive perception value. In addition, infrastructure development has changed the area’s morphology to be more organized and increased opportunities for the community to increase their income and their sustainability.

Keywords: community, development program, kampong bahari

1. Introduction

Development is an effort to improve the community's standard of living and to realize the existing potential systematically [1]. Development is also a change process for the better through planned efforts [2]. Government can measure the success of development through the parameters of the average wealth of the population, equity (access), quality of life, environmental impact, social conditions and sustainability [2]. Meanwhile, according to Soediono [3], the development will more or less cause changes in the composition and patterns of society, especially in creating a better community life, for example, economic growth for welfare. Based on these studies, the conclusion is that development for the community must provide improvements both socially, economically and environmentally. It is essential to research the influence of development on the quality of people's lives to help solve problems and be an evaluation material for other developments and subsequent developments. Previous research conducted found that social impact is a consequence that leads to development [4]. Development
impacts directly or indirectly affect certain people or communities. Another study in Ghana confirmed that a positive index derived from the relationship between infrastructure development and local economic growth [5], such as constructing power plants that can help rise from the financial crisis. In addition, road infrastructure development is essential in contributing to 70% of food prices in Ghana's urban centres. Good quality infrastructure can have an optimal impact on people's welfare.

Tambak Lorok is one of the coastal community settlements located in Semarang, Indonesia. This location is an important shipping route to support Tanjung Emas Port activities and is the largest fishery producer in Semarang City. On the other hand, Tambak Lorok is one of the settlements with the highest level of slums according to the Decree of the Mayor of Semarang Number 050/80/2014. There is land subsidence of 14 to 19 cm every year, and the phenomenon of tidal waves that damage infrastructure and housing quality exacerbates environmental conditions [6]. The high ecological degradation causes community fishery production and environmental quality to decrease so that it can directly or indirectly affect the lives of local people. The problem of ecological degradation then received significant attention from the Central Government by implementing the "Kampung Bahari" program starting in 2015. The program aims to improve the quality of the environment and increase community resources by focusing on three main components: environmental improvement, economic improvement and social quality of life. Until 2019, the infrastructure development has reached 20% with the construction of maritime infrastructures such as the Main Road Network, Fish Market, Monument, Park, Embankment or Boat Mooring, Floating Hall, and Public Toilets [7].

"Kampung Bahari" is a village development concept that utilizes marine potential in the form of tourism while still paying attention to the sustainability of the ecosystem [8]. Meanwhile, the main components such as fishing or coastal communities, settlement infrastructure, and the environment are interrelated to form a particular system. People living in cities or coastal settlements have socio-economic characteristics closely related to economic resources from the sea area [9]. Therefore, research on the effect of the "Kampung Bahari" program implemented in Kampung Tambak Lorok Semarang is fascinating to observe.

Based on this, this study aims to determine the effect of the infrastructure development of 20% through the "Kampung Bahari" program implemented in Kampong Tambak Lorok. This program will also prove the achievement of development goals at the beginning of the program planned by the government and input for the following development process.

2. Methods

Research data collection is in 2020, consisting of primary and secondary data collection. Primary data collection is by distributing closed questionnaires to 20 respondents. This study uses a purposive sampling technique to identify and select respondents aged 17 years and over as a source of information. Collecting the results of field observations of existing infrastructure is to determine the current condition of the results of the "Kampung Bahari" development. Meanwhile, secondary data collection is through collecting relevant literature from print media and the internet.

This study uses quantitative research methods that utilize numerical data calculations. Range analysis uses a Likert scale to determine each variable's influence category and indicator based on perception. The Likert scale combines four or more question items to form a score or value representing individual traits, such as knowledge, attitudes, and behaviour [10]. The Likert scale in this study is presented in Figure 1.

![Figure 1. The Likert Scale used in this study](image)

The description 1.00 - 1.80 is Very No Influence (STB), 1.81 – 2.61 is No Effect (TB), 2.62 – 3.41 is Less Influential (KB), 3.42 – 4.21 is Influential (I), 4.22 – 5.00 is Very Influential (SB). Meanwhile,
to find out the factors that influence people's perceptions in assessing development using non-parametric correlation analysis (Spearman Correlation) through the SPSS Statistics 24 application. With the dependent variable (Y) in the form of perceptions of infrastructure development and the independent variable (X) in the form of respondent characteristics (see Fig. 2). If the result of the correlation value is more significant than 0.05, then there is a relationship between the two variables. On the other hand, if the result of the significance value is less than 0.05 (<0.05), then the relationship between the two variables is strong.

![Figure 2. Spearman Correlation Analysis Variable Diagram.](image)

3. Result and Discussion

3.1. The Influence of the Development of “Kampung Bahari”

The analysis of the influence of the development of "Kampung Bahari" in Table 1 shows that the average value of the influence category based on people's perceptions of 3.59 belongs to the type of Influential (B). Let's look at the results based on the value of the infrastructure variable. One infrastructure facility, Balai Apung, is included in the Less influential category (KB) because the interval value is only 3.28. This value follows the data from field observations and interviews, which state that people are less comfortable using the Floating Center because of the lack of facilities such as toilets and clean water sources. In addition, according to the assessment indicators results, Balai Apung can still not influence the increase in public interest in reading. Meanwhile, assessing the most influential infrastructure facilities in the form of barriers or boat moorings with an interval value of 3.85. The community considers that the existence of levees or boat moorings has had a good effect on reducing tidal inundation, ease of access for fishing boats, and at the same time as a way to increase tourist attraction in the Kampung Bahari area.

The existence of parks or green open spaces dramatically influences people's lives. The presence of a park most affects the increase in the results of the assessment indicators, namely the growth in environmental aesthetics. In addition, the fish market has a significant role in increasing tourist attraction which in turn has an impact on improving the community's economy. The fish monument that has been built affects enhancing the image of the area. The unique shape of the fish makes it easy for people to recognize the Kampung Tambak Lorok area as one of the fishing villages in Semarang City. The construction of public toilets is considered to have had an effect or contributed to creating a clean and healthy life for fishing communities. In addition, the existence of a road network also affects increasing access to the area and improving environmental management. The construction and widening of roads and relocation of traders who used to trade along the main village roads increase the value of access.

The results of the analysis are relevant to the purpose of the existence of infrastructure that functions to facilitate human life or activities [11]. In addition, development theory states that development is...
successful if it can improve people's living standards [1]. This lack has implications for infrastructural facilities that are less functional, such as the Floating Hall. The community is worried that the Floating Centre's malfunctioning will impact the perceived failure of development goals and harm the community in the future.

Based on the development objectives of "Kampung Bahari" itself, there are two main aspects in the form of characteristics of coastal morphology and human resources. In general, the development of as much as 20% has been able to realize the primary goal of implementing the "Kampung Bahari" concept. Based on the average calculation value, the results of the morphological influence are 3.67, and human resources are 3.53, which are included in the Influential category (B). Morphological aspects in general much as 20% has been able to realize the primary goal of implementing the "Kampung Bahari" concept.

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Table 1. The results of the Likert interval analysis of the effect of development.

| Variable          | F (x) | 1 | 2 | 3 | 4 | 5 | M=F(x)/n | R Variable |
|-------------------|-------|---|---|---|---|---|----------|------------|
| A Embankment      | 9     | 4 | 5 | 10| 6 | 0 | 3.85     | 3.83       |
| • Tidal flood     | 15    | 12| 13| 14| 13| 0 | 3.75     | 3.75       |
| • Ship access     | 2     | 1 | 3 | 0 | 4 | 3 | 3.55     | 3.55       |
| • Tourism         | 2     | 1 | 3 | 1 | 2 | 0 | 3.45     | 3.45       |
| • Social interaction | 2 | 1 | 3 | 1 | 2 | 0 | 3.45     | 3.45       |
| B Park            | 3     | 2 | 1 | 5 | 3 | 0 | 3.50     | 3.50       |
| • Cool climate    | 2     | 1 | 3 | 1 | 2 | 0 | 3.45     | 3.45       |
| • Social interaction | 2 | 1 | 3 | 1 | 2 | 0 | 3.45     | 3.45       |
| • Aesthetics      | 4     | 12| 13| 14| 15| 0 | 4.00     | 4.00       |
| • Image           | 5     | 10| 14| 13| 12| 0 | 3.85     | 3.85       |
| • Tourism         | 5     | 10| 14| 13| 12| 0 | 3.85     | 3.85       |
| C Fish market     | 5     | 12| 10| 8 | 4 | 0 | 3.60     | 3.60       |
| • Tourism         | 5     | 10| 14| 13| 12| 0 | 3.85     | 3.85       |
| D Monument        | 3     | 15| 9 | 3 | 6 | 2 | 3.45     | 3.45       |
| • Aesthetics      | 3     | 15| 9 | 3 | 6 | 2 | 3.45     | 3.45       |
| • Image           | 6     | 10| 14| 13| 12| 0 | 3.85     | 3.85       |
| • Tourism         | 1     | 5 | 10| 14| 13| 0 | 3.50     | 3.50       |
| E Floating House  | 3     | 15| 11| 14| 13| 0 | 3.75     | 3.75       |
| • Social interaction | 3 | 15| 11| 14| 13| 0 | 3.75     | 3.75       |
| • Organization    | 3     | 15| 8 | 3 | 6 | 2 | 3.45     | 3.45       |
| • Interest in reading | 1 | 5 | 10| 14| 13| 0 | 3.50     | 3.50       |
| F Public toilet   | 3     | 15| 9 | 3 | 6 | 2 | 3.45     | 3.45       |
| • Health          | 4     | 20| 8 | 3 | 6 | 2 | 3.45     | 3.45       |
| • Cleanliness     | 4     | 20| 8 | 3 | 6 | 2 | 3.45     | 3.45       |
| G Road Network    | 4     | 20| 14| 13| 12| 0 | 3.85     | 3.85       |
| • Access          | 4     | 20| 14| 13| 12| 0 | 3.85     | 3.85       |

Notes: \( F(x) = \text{number of choices times Likert value}; M = \text{division of the number of } F(x) \text{ with the total respondents}; R. \text{ Variable } = \text{Likert average value of each variable}

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In addition, in the aspect of human resources, the existence of infrastructure facilities can increase access to fishing boats, increase community interaction, form organizations, improve public health, and increase tourist attraction which in general has an impact on improving the economy. This condition is relevant to the opinion that explains that one aspect of successful development is integration with the socio-economic aspects of the community [12].

Infrastructure development based on the "Kampung Bahari" Development Master Plan in [7] focuses on two main aspects: improving coastal morphology and community resources. The growth that occurs more or less will result in changes for the better through structured planning [2]. The effect of physical changes that can be seen through time-series observations of Google Earth imagery shows that the Kampong Tambak Lorok area is much more organized morphologically after the construction of "Kampung Bahari" in 2019 than before the construction of "Kampung Bahari" in 2010 (see Fig. 3). Figure 3 shows that the part marked in red precisely in Block 1 of the area is the area with the most visually visible morphological changes after constructing "Kampung Bahari". Based on the entire site
of the planning location, 84.48 Ha, only 17.15 Ha (20.3%) experienced significant morphological changes based on their appearance. This value is relevant to the development review results in the "Kampung Bahari" Building and Environmental Planning, which has been built as much as 20.83%. There is a difference in the percentage change of 0.52% compared to the existing condition.

Figure 3. Morphological Changes of Kampong Tambak Lorok a) Time Series Imaging of Morphological Changes of Areas Before and After Development, b) Embankment as Boat Access Before and After Construction of Kampung Bahari

In addition to the area's physical condition or morphology, development can make area changes based on increased community resources. These changes are seen in the population's income and composition before and after the action. Based on data from the Fisheries Service of Semarang City in 2015, the value found that 28.2% of anglers had incomes below 1 million rupiahs (<1 million rupiahs) until they were uncertain. This condition shifted compared to income data in 2019, which showed a reduction in fishers with an income of less than 1 million Rupiah (<1 million Rupiah) to 25%. From the perspective of individual/group fishers, the significant change from 2015 to 2019 was 3.2% (Figure 4 part a). This condition is in line with research in Ghana, which states that good infrastructure development can improve the community's economy [5].

Based on Figure 4 part (b), it can be seen that there has been a change in the composition of the population. The form of changes in the number of residents was based on the Rukun Warga in 2015 and 2019. The population has decreased significantly since the construction of "Kampung Bahari" by 20% at the end of 2019. Indications of the reduced population are due to the process of structuring the residential environment by relocating residential residents. There are 108 residential communities affected by the construction of infrastructure, such as roads and embankments, based on news from Tribunnews.jateng.com [10]. Population reduction is one of the results of environmental management aiming to reduce residential density. The high density of fishers' dwellings will create an area with a high level of slums [13]. Therefore, a residential arrangement will reduce environmental damage and continue to decrease the community's quality of life due to the problems of slum areas in Tambak Lorok Village. Although in practice, there are still people who are against the government's policy on land
acquisition by relocating housing. The statement also supports this that the social impact of the community is a consequence received from the existence of a development process in an area [4].

Figure 4. Changes in income (a) and changes in population composition (b) from 2015 to 2019

3.2. Factors Affecting Public Perception
The community's tendency to respond to the development of the "Kampung Bahari" infrastructure is inseparable from the community's perception or assessment of the program's running to date. It is undeniable that the formation of perceptions so far is also very dependent on the influence of factors within the individual, in this case including knowledge, alignments, location of residence, age, occupation, and length of stay, which are internal factors of individual perception [14]. The influence analysis, in this case, uses ordinal (category) data which has previously been applied to the characteristic coding process. Next is the correlation analysis between user characteristics (X) and the assessment of the influence of infrastructure based on public perception (Y) using the Spearman Correlation analysis tool in the SPSS Statistics 24 application.

Table 2. SPSS Non-Parametric Correlation Results.

| Category               | Correlation | Strength | Significancy (Sig) |
|------------------------|-------------|----------|--------------------|
| Knowledge              | 0.187       | Weak     | 0.431              |
| Pros and cons          | 0.235       | Weak     | 0.318              |
| Living Location        | 0.480       | Fair     | 0.032              |
| Age                    | 0.168       | Weak     | 0.479              |
| Work                   | 0.179       | Weak     | 0.451              |
| Length of stay         | -0.137      | Weak     | 0.563              |

Table 2 shows the results of the non-parametric correlation using the Spearman correlation analysis showed that the factor of residence based on the Rukun Warga is a factor that influences the formation of people's perceptions of Kampung Tambak Lorok. Where in the residential category, the significance value is 0.032, more diminutive than 0.05 (<0.05), which indicates that the location of residence is significant to people's perceptions in assessing the influence of the "Kampung Bahari" infrastructure. Based on the correlation value, it can seem that the direction of the relationship between residence and community perception is positive. This perception means that the closer the home's location to the area of infrastructure facilities, the greater the community will feel the benefits of development.

4. Conclusions
As one of the national priority programs, the construction of "Kampung Bahari", which has only reached 20%, can at least affect the local community's pattern of life. The results of the Likert scale analysis show that the construction of embankments, boat moorings, parks, green open spaces, fish markets, fish monuments, floating halls, public toilets, and road networks is included in the Influential category (B) with a flow value of 3.59. Meanwhile, the results of the correlation of people's perceptions of the construction of infrastructure (Y) with the characteristics of the respondents (X), which include age, gender, occupation, location of residence, and length of stay, resulted in a close correlation in the
assessment of the effect of development on the place of residence. This study still has weaknesses, especially regarding the lack of respondents because data collection was carried out during the Covid-19 pandemic.

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