Quality improvement strategy of slum settlement in Kingking sub district, Tuban Regency

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Abstract. Handling slum areas up to 0\% becomes a major concern for the Government of the Republic of Indonesia which has been contained in the National Medium Term Development Plan (RPJMN) of 2015-2019. Kingking sub district is an area in the coastal district of Tuban Regency which still has slum settlements until now. This research was conducted to formulate strategies to improve the quality of slum settlements in Kingking sub district through SWOT analysis. Based on the final result of this research, it can be concluded that the strategy to be taken is by using the strength to overcome the existing threats, by focusing on increasing the synergy between government, community, and private role in order to handling the slum.

Keyword: slum settlement, SWOT analysis, EFAS, IFAS

1. Introduction
Humans live and stay on the surface of the Earth with resources that support their lives. Human life conditions are scattered in several locations on the surface of the Earth such as lowlands, highlands / mountains, coastal areas, and other location points. Ultimately, human dwellings form a certain pattern of settlements. One of the locations used as human residence is the coastal area. However, most of the coastal areas in Indonesia are identical with the existence of slum communities. In general, slum settlements in coastal areas are home to fishermen who choose to live close to their work areas. With the limited resources they have, they usually build a temporary house as a shelter from threats with a lack of supporting infrastructure.

In the Law of the Republic of Indonesia Number 1 of 2011 it mentioned that the State is responsible in organizing housing and settlement areas so that the people are able to live and inhabit properly, affordable, safe, convenient, harmonious, and sustainable in all parts of Indonesia. In line with that, slum settlement up to 0\% becomes the main concentration for the Government of the Republic of Indonesia as stated in the National Medium-Term Development Plan (RPJMN) 2015-2019.

Slums are considered as illegally occupied and cause pollution and also urban environmental degradation, slums are also informal settlements with high population density and low standards of living [1,2]. In addition, slum areas are often seen as an area that is identical to be apathetic, overpopulated, poor, dilapidated, dangerous, dirty, unsuitable, unhealthy and many other negative stigma [3,4]. Some of the possible impacts from the existence of slum areas are the emergence of...
various diseases, the occurrence of economic and social disparities, and the emergence of various criminal acts [5, 6].

The coastal area of Tuban Regency is a strategic location in the PANTURA Line (North Coast) where the area is widely developed investment and industrial activities. The development of industrial and investment sectors in Tuban Regency in the last decade shows very rapid growth. The investment and industrial sector is offset by the increasing number of migrant population resulting in the emergence of slum phenomenon in Tuban Regency, especially in coastal areas. The phenomenon of slum settlement in coastal area of Tuban Regency is very interesting to be studied where needed a handling in form of strategy to improve the quality of slum settlement [7]. The formulation of the strategies generated in this study using SWOT analysis with the assessment of EFAS Matrix (External Factor Analysis Summary) and IFAS Matrix (Internal Factor Analysis Summary).

2. Research Methods
The research method used in this research is qualitative method through descriptive approach. This method aims to be able to formulate the results factually, systematically, and accurately about the properties of the object of research used [8].

2.1. Research study area
The areas study of this research will focus on slum areas in Kingking sub district especially in the areas of Community Groups (RW) 01, RW 02, RW 03, RW 04, RW 05, and RW 06.

2.2. Data collection method
Data collection method in this research is through instational survey, field observation, and structured interview during July-August 2017. From the results of field observation and interview activities that have been done can be obtained description of the slum settlement area in the coastal of Tuban Regency, especially in Kingking sub district. The description of slum conditions is formulated in the points of strengths, weaknesses, opportunities, and threats in the handling of slum areas.

2.3. Data analysis method
Tools analysis used in this research is SWOT through EFAS and IFAS matrice. SWOT analysis is a basic method that is useful for finding a solution of a problem from four different perspectives. The results of SWOT analysis constitute the formulation of directives, recommendations, and planning strategy with the conception of SWOT matrix [9]. The determination of management strategy is achieved by assessing each of the strength, weakness, opportunity, and threat in EFAS and IFAS matrices that will display the quadrant form. The scoring of each SWOT aspect which was weighed on each factor (internal/external) was summed to produce Weight 1. After weighting the criteria, assessment is given to indicate the level of importance (1 = less important, 2 = somewhat important, 3 = important, 4 = very important). The weighting value will be multiplied by the specified value. The number of each of the factors (internal/external) will be calculated to determine the location of SWOT quadrant in order to determining the management strategy of slum area in Kingking sub district.

3. Result
In general, the slum conditions in Kingking sub district based on field survey are described as follows:
- The majority of the buildings are in irregular conditions, where the facade of residential buildings in Kingking sub district is mostly not facing directly to roads with a minimum width of 1.5 meters;
- There are still many environmental roads with width less than 1.5 meters;
- Environmental roads with a width more than 1.5 meters are still not been equipped with drainage channels on the roadside;
- Most of the existing drainage channels are damaged and can not function to drain the water;
- Although already served by PDAM pipeline, but still many residents in Kingking sub district can not access proper water, so the daily minimum water requirement of resident is not fulfilled;
For wastewater treatment systems, the majority of residents already have private latrines that are in compliance with standards and they have access to public toilets; 
For disaster protection, there are no fire protection facilities in Kingking sub district and some locations do not support the PMK car to pass in case of fire disaster (due the environment road width is less than 1.5 meter); and 
For the protection of coastal abrasion and flooding, there are already built a embankment along the coastline in Kingking sub district.

Based on the discussion above, then the next step is to formulate the points of strengths, weaknesses, opportunities, and threats from the existence of slums in Kingking Sub Village.

**Table 1. Point of Strenghts, Weakness, Opportunity, and Threats Factors in Slum Areas in Kingking Sub District**

| Strengths | Weakness | Opportunity | Threats |
|-----------|----------|-------------|---------|
| The high economic activity of the community | The majority of the buildings are in irregular conditions | Kingking sub district is a downtown area in Tuban Regency | The financing budget in Tuban Regency only focuses on the development of the village area |
| There is a waste bank in community waste management | There are still many residential buildings that need to be repaired | The existence of the program "Kotaku" (City Without Slum) | Ineffectiveness of Musrembang (development planning meeting) activities and community empowerment |
| Population access to public and private toilets has been fulfilled | There are still many environmental roads that not in line with the standard | Slum handling becomes the main concentration of the government of Tuban Regency | Kingking sub district is an area prone to tornado disaster, tidal wave, flood, and fire disasters |
| Coastal areas are already equipped with the embankments | The environmental roads are still not been equipped with drainage channels on the roadside | | |
| | Most of the existing drainage channels are damaged and can not drain the water | | |
| | The majority of citizens can not access proper clean water | | |
| | There are no fire protection facilities in Kingking sub district | | |

The SWOT points formulation above will be assessed through the EFAS (External Factor Analysis Summary) matrix and IFAS (Internal Factor Analysis Summary) matrix. The weighted and rating columns in Table 2 and Table 3 were obtained from the questionnaires to the stakeholders and the local community in Kingking sub district as follows:
Table 2. External Factor Analysis Summary (EFAS) Matrix of Slum Area in Kingking Sub District

| External Factors | Weight | Rate | Weight x Rate |
|------------------|--------|------|---------------|
| **OPPORTUNITIES** |        |      |               |
| ▪ Kingking Sub District is a downtown area in Tuban Regency | 0,15 | 4 | 0,58 |
| ▪ The existence of the program "Kotaku" (City Without Slum) | 0,18 | 4 | 0,72 |
| ▪ Slum handling becomes the main concentration of the government of Tuban Regency | 0,19 | 3 | 0,56 |
| **Opportunities Total** | 0,51 | | 1,86 |
| **THREATS** |        |      |               |
| ▪ The financing budget in Tuban Regency only focuses on the development of the village area | 0,14 | 3 | 0,42 |
| ▪ Ineffectiveness of Musrembang (development planning meeting) activities and community empowerment | 0,17 | 3 | 0,51 |
| ▪ Kingking Sub District is an area prone to tornado disaster, tidal wave, flood, and fire disasters | 0,19 | 4 | 0,75 |
| **Threats Total** | 0,49 | | 1,68 |
| **Opportunities-Threats Total** | 1,00 | | 0,18 |

Table 3. Internal Factor Analysis Summary (IFAS) Matrix of Slum Area in Kingking Sub District

| Internal Factors | Weight | Rate | Weight x Rate |
|------------------|--------|------|---------------|
| **STRENGTHS** |        |      |               |
| ▪ The high economic activity of the community | 0,12 | 3 | 0,35 |
| ▪ There is a waste bank in community waste management | 0,08 | 4 | 0,34 |
| ▪ Population access to public and private toilets has been fulfilled | 0,08 | 3 | 0,25 |
| ▪ Coastal areas are already equipped with the embankments | 0,09 | 4 | 0,36 |
| **Strenghts Total** | 0,38 | | 1,30 |
| **WEAKNESS** |        |      |               |
| ▪ The majority of the buildings are in irregular conditions | 0,09 | 3 | 0,27 |
| ▪ There are still many residential buildings that need to be repaired | 0,08 | 4 | 0,34 |
| ▪ There are still many environmental roads that not in line with the standard | 0,09 | 3 | 0,27 |
| ▪ The environmental roads are still not been equipped with drainage channels on the roadside | 0,08 | 2 | 0,17 |
| ▪ Most of the existing drainage channels are damaged and can not drain the water | 0,09 | 4 | 0,36 |
| ▪ The majority of citizens can not access proper clean water | 0,10 | 4 | 0,39 |
| ▪ There are no fire protection facilities in Kingking Sub District | 0,08 | 3 | 0,25 |
| **Weakness Total** | 0,62 | | 2,06 |
| **Strenghts-Weakness Total** | 1,00 | | -0,76 |

Based on the two tables above, it can be determined the value of X and Y value on the axis line that indicating the position on which quadrant strategy will be taken in order to handling slum settlement Kingking sub district.
X = Strengths – Weakness
= 1.86 – 1.68
= 0.18

Y = Opportunities – Threats
= 1.30 – 2.06
= -0.76

### EFAS

| Quadrant 1 (SO) | Quadrant 3 (WO) |
|----------------|-----------------|
| Quadrant 2 (ST) | Quadrant 4 (WT) |

**External Opportunities (+)**

**Internal Weakness (-)**

**External Threats (-)**

**External Strengths (+)**

**Figure 1. Quadrant of EFAS dan IFAS Matrice**

Based on Figure 1 above, it can be seen that the quadrant position of slum quality improvement strategy in Kingking sub district is in Quadrant 2 where it has positive strength value (0.18) and negative threat value (-0.76). Therefore, the handling direction that can be applied is to create a strategy that uses the strength to overcome the existing threat with the details of the main strategies as follows:

- Increasing synergy of government, community and private role in handling slum settlements
- Formulating funding schemes in the handling of slums
- Empower communities in economic development to encourage development participation rates
- Develop disaster management instruments, both in terms of facilities and infrastructure disaster

### 4. Conclusion

The main problems of slum areas in Kingking sub district are on the aspect of drinking water supply, the availability of drainage channels, and the condition of disaster protection. From SWOT results through EFAS and IFAS Matrices, it is known that the strategy of handling slum areas in Kingking sub district is in Quadrant 2 where the handling direction that can be applied is by creating strategies that use the strength to overcome the existing threats.

### 5. References

[1] Ragheb, G., El-Shimy, H. and Ragheb, A., 2016. Land for poor: towards sustainable master plan for sensitive redevelopment of slums. *Procedia-Social and Behavioral Sciences*, 216, pp.417-427.

[2] What are slums and why do they exist? UN-Habitat, Kenya (April 2007)

[3] Budiharjo, E. 1997. Tata Ruang Perkotaan. *Bandung: Alumni*.

[4] Kuswartojo, T., Rosnarti, D., Effendi, V., Rasiono Eko, K. and Sidi, P., 2005. Perumahan dan Permukiman di Indonesia, Upaya membuat perkembangan kehidupan yang berkelanjutan. *Bandung: Penerbit ITB*. 

5
[5] Turley, R., Saith, R., Bhan, N., Rehfuess, E. and Carter, B., 2013. Slum upgrading strategies involving physical environment and infrastructure interventions and their effects on health and socio-economic outcomes. *status and date: New, published in*, (1).

[6] Cardinali, D.P., Simonelli, G., Rodríguez Espínola, S., Salvia, A., Pérez-Chada, D. and Vigo, D., 2013. Sleep, slums and shelter: impact of a slum-housing upgrading program. *Proceedings of the Working Group in Bread, Brain, Education and Poverty*, pp.1-14.

[7] Jones, P., 2017. Formalizing the Informal: Understanding the Position of Informal Settlements and Slums in Sustainable Urbanization Policies and Strategies in Bandung, Indonesia. *Sustainability*, 9(8), p.1436.

[8] Suryabrata, S., 1983. Metode penelitian. *Jakarta: CV Rajawali*.

[9] Duncan, J. W., & Gross, A. C. 1993. Statistics for the 21st Century: Proposals for improving statistics for better decision making.

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