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Studying The Effect of Tourism Revitalization Program : Sustainable Upgrading Slums Settlements of Malang, Indonesia

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Abstract

Consequent of urban poverty is lack of affordable housing in urban areas. It leads to the increasing slum settlements of urban inhabitants living in deprived urban areas. Typically, slum settlements were distress and discomfort aspect on social, economic and environmental. However, policy efforts slum revitalization in Indonesia is observed to have a economic effect on the residents, where revitalization slum area of Tridi subdistrict in Malang become site tourism. Therefore, the purpose of this study is to investigate influence of revitalization slum program refer to Sustainable Development Goals (SDGs) index on development community, community behavior on environmental and ecosystem-based sustainability. This study uses a qualitative fault tree analysis (FTA) approach in sequence. Data were obtained through observation, surveys, and documentation. The results indicate a considerable built environment discomfort was due to lack of social spaces and poor design of the slum revitalization landscape. This study offers the concept of improvement strategy for slum shall not orientate to merely for beautification but also considering to improve the sustainability of the slum wellbeing.

Keywords: Slums, Urban, Sustainable, Environment, Wellbeing.

1. Introduction

In the modern period, the majority population of countries lived in cities because of all the diverse job opportunities and amenities. Moreover, the UN-HABITAT report forecasts urban areas will be the epicenter of population growth in the next 30 years (UN-Habitat, 2022).This can be shown by massive new building construction with close-density levels of buildings in cities (Rahman & Kojima, 2018). To this growth, planners, and governments in many countries specifically in developing countries face the challenge of urban design areas. With several concerns about unsustainable consumption sources, greenhouse gas emissions, and waste treatment management (Savelli et al, 2022). Furthermore, rapid population growth without urban planning policies has led to poverty. This is an evident in the proliferation and expansion of slums, which are home to a growing proportion of urban dwellers. The slum settlements in urban settings are regarded as a low-cost livelihood zone for poor communities. In many cases, urban poverty is the result of continued rural-urban migration, and a lack of affordable formal housing offers (Liu and Jia, 2021). Although slum settlements are a worldwide phenomenon, their genesis and development have distinct features across the countries (Abass and Kucukmehmetoglu, 2021).

Indonesia is the 4th largest populous country in the world with a population of more than 270 million people inhabiting an area of 1,904,569 km2. The population of Indonesia is equal to 3.45% of the total world population with a density of 153 people per km2 (Widya et al, 2019). Albeit the majority population of the country lives in urban areas, with about 67% of its population living in urban (Luo and Wang, 2022). According to Indonesian statistical records about 9% - 12% of the urban population lives in urban slums (Rizaty, 2021) However, not all of the population has been accompanied by parallel increases in job creation, health well-being and other social services. As a result, many of the low-income residents, end up living in slums because that is the only place where they can afford house rental. These poor environmental conditions create vulnerability to infectious diseases.

1.1 Local Government Action

In Indonesia, since the autonomy of regions has been fully implemented, each city or region--government given authorisation has a different program to handle slums in their cities. One of the most phenomenal copes of slum settlements is Malang City of East-Java Province, through transforming slum areas into productive zones and creating an environment that adds economic value with empowered communities. To handle the slum neighbourhood issue, the local municipal government of Malang launched a thematic village or kampong tourism program in 2018. The main idea of this plan is a collaboration program tourist destination based on community development which refers to the National target of Sustainable Development Goal (SDG) point 11 (Sakdiah & Rahmawati, 2021). This program contributes to both poverty alleviation and environmental preservation, ultimately leading to the establishment of a sustainable city (Ervianto & Felasari, 2019).

However, the rapid and exponential number of visitors become overlapping contributing to the development of slums and environmental degradation. Moreover, no detailed principle approach or scenario was developed on how to monitor the environmental key index of SDGs' guidelines. The implemented plans only likely suggested improvement strategies without any standards for their realization. Furthermore, there are contradictions in slum settlements that do not provide detailed spatial information and environmental characteristics.

Therefore, the present study aims to investigate tourism thematic village program concepts for the improvement of environmental slum settlements. This study is significant because the identification of such environmental risk factors may facilitate appropriate well-being improvement interventions in slum settlements. With a focus on recognising the uniqueness, and role of the slum area in shaping the city.

2. Study Area

In this study, Tridi subdistrict, situated on Temenggungan Ledok Street Malang City of East-Java Province is selected with purposive criteria (detail present in figure 1). Those criteria are as the following; 1) experiencing transformation into thematic villages; 2) located in the split of Brantas Rivers as downstream; 3) highly visited destinations by local or international tourists; and 4) historical background due to its less strategic location on the-

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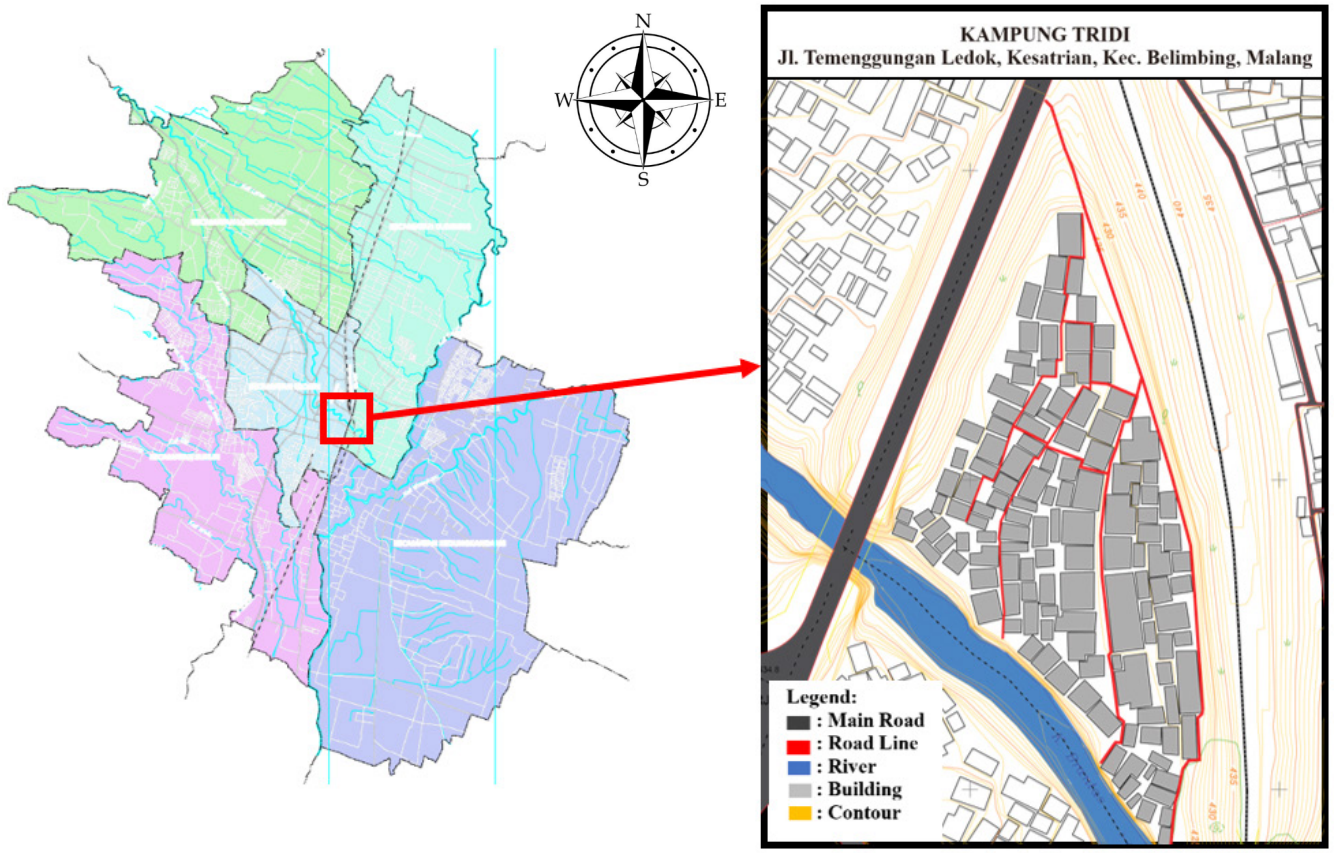


Figure 1. Detailed study location in Tridi subdistric, Malang

-city's outskirts. Moreover, Tridi subdistrict slum areas is an area with poor coverage of clean water resources and high population density, it seems the current conditions in the Tridi subdistrict are not synced with a priority sustainable development project.

3. Conceptual Framework Analysis

The analysis process for the case study location was performed using three steps:

- First, survey observations made in this study are associated with two things, namely information, context and photographs. Information was collected through questions raised in interviews with residents met during the survey at the location. The questions formulated in the questionnaire were based on the criteria of the Sustainable Development Goal (SDG).
- Second, the results of the questionnaire were evaluated beforehand to profile the inhabitant characteristics based on aspects of physical, economic, conservation, social, and disaster facilities (hazards) obtained from the study location.
- Final or Third, involved post-processing of the -observation and interview data using a qualitative fault tree analysis (FTA) (Kishita et al, 2017), to describe residents' idea of a better sustainable community for their social, environmental, and economic well-being systematically and logically.

4. Results and Discussion

In accordance with the variables utilized in this research, an identification process is conducted to assess the condition of the studied settlement based on six settlement indicators, which will subsequently be evaluated. The following presents the results of the identification process conducted in the Tridi Village settlement in Malang City.

In the present study, there are five indicators of development community on environmental and ecosystem based sustainability. i.e. the condition of the building, environmental accessibility, environmental drainage, clean water services, and wastewater treatment and waste management (Ferrario et al,2021). These indicators, evaluate the performance of community development, is to understand the behavior of residents as a community in monitoring, adaptation, and action of ecosystem-based sustainability.

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4.1 The Condition of the Building

Regarding the building condition aspect in this thematic village, there are approximately 200 houses within the Colorful Village with a settlement area of less than 1 hectare. In accordance with the regulations for building density in a city, for a medium-sized city like Malang, building density can be considered high in an area where housing units exceed 200 units/ha. Thus, in this village, the building density can be deemed high.

In addition to considering the density of buildings, the adherence to regulations regarding building construction within riverbanks, building coverage ratio (KDB), and land utilization ratio (KLB) for residential buildings is not observed. The buildings in this settlement are constructed without adhering to government regulations regarding built-up area. The community in this settlement tends to be unaware of and overlook these regulations. This situation arises due to the settlement's spontaneous formation and lack of construction permits. Consequently, this also results in the density of buildings within the settlement.

The next factor serving as an indicator of slum conditions in the building aspect is the building quality. Building quality is not evaluated solely based on the appearance of houses within the settlement, but rather emphasizes building quality that takes into account environmental impact, safety, health, and comfort aspects. Upon considering the facades or physical appearances of the buildings, following the area rejuvenation conducted by the Government, there is indeed an improvement in the building facades with the application of colors that align with the area's concept. However, these improvements only pertain to the external-aesthetics of the buildings and do not address on more crucial aspects such as safety, health, and building comfort.



Figure 2. Condition of Tridi Village Buildings

The river environment serves as a determinant of the building qualities in this settlement. The river acts as a natural factor that must be considered when constructing residences in a river basin area. Due to the unregulated development of this tourist village, the local community has overlooked the natural river environment within this area. The quality of housing in this settlement disregards both the physical integrity of the structures and personal safety considerations. If the river were to overflow or experience landslides in the riverbank area, the nearby community would also be affected.

The population density impacts the quality of housing in this settlement. As housing becomes more densely packed within a settlement, the quality of residential buildings tends to decline. Densely clustered dwellings result in inadequate sunlight and airflow penetration into the buildings, rendering them less conducive to health. Due to the lack of natural illumination within homes and obstructed or restricted airflow circulation,-



Figure 3. Density of Tridi Village Buildings

-dwellings become less healthy for their occupants.

From several indicators related to the building conditions in the Tridi Village settlement, the state of the buildings tends to lean towards slum conditions. Despite rejuvenation efforts in the area through activities such as repainting residential structures, the slum-related indicators still suggest a tendency towards slum-like conditions. Therefore, specific measures are required to address the building conditions within this settlement.

4.2 Environmental Accessibilities

The accessibility aspect of this area is examined based on the condition of the neighborhood road network within the settlement. In accordance with the slum indicators concerning environmental accessibility, the road network can be categorized into two types: adequate coverage of the neighborhood road network and roads that meet technical requirements. Adequate coverage of the neighborhood road network implies roads with a width ≥1.5 meters, with a paved surface. Meanwhile, roads meeting technical requirements refer to neighborhood roads with a width ≥1.5 meters, equipped with side drains.

Considering the neighborhood roads within the scope of this thematic village area, it can be assessed that the aspect of environmental accessibility falls under adequately developed neighborhood roads, both in terms of coverage and technical requirements. The neighborhood roads in this thematic village have been repaired during the area rejuvenation process prior to becoming a thematic village. The government conducted-the area rejuvenation to enhance the settlement environment, addressing previous damages across various aspects, including the road network.



Figure 4. Condition of Tridi Village Roads.

Looking at the road network coverage indicators within this thematic village settlement, all roads have been paved, either using concrete material or paving blocks. Alongside the paving, the road surfaces are painted with colors that align with the area's concept. In Kampung Tridi, the road surfaces are adorned with vibrant colors, along with decorative elements and captivating artworks, aimed at enhancing the visual appeal of the settlement area.

The road width in this settlement area meets the standard requirements for a habitable environment, with a width exceeding 1.5 meters. Main village roads usually have a width exceeding 2 meters. Meanwhile, supporting roads, such as alleys, have smaller dimensions, approximately 1.5 meters wide. From a technical standpoint, there are several roads that already have channels on the side or in-



Figure 5. Types of Drainage in Tridi Village

the center, although not all roads have channels.

4.3 Environmental Drainage

The environmental drainage aspect in this settlement can be assessed by the presence or absence of drainage systems within the settlement's environment. In the Tridi Village settlement, there are drainage systems along its road areas. The drainage is situated beneath the road network, and there are several positioned on both the left and right sides of the road. The type of drainage located beneath the road network is more suited for narrower roads or alleyways, typically measuring around 1.5 meters in width. Although there are also some road sections wider than 2 meters that utilize sub-surface drainage. The implementation of sub-surface drainage in this context is aimed at avoiding encroaching on the limited width of small roads. However, the use of this type of drainage beneath the road network presents challenges in controlling the flow smoothly, as it is concealed by the road itself.

The second type of drainage is the one situated alongside roads. This type of drainage is commonly used for relatively larger roads. The drainage system is positioned on both the left and right sides of the road, with options for an open or closed design. The width of the drainage is typically in the range of 15-20cm. Open-type side drains offer the advantage of easy control, whereas closed-type drains tend to be less controllable.

The community tends to overlook the condition of drainage channels, despite their vital role in the settlement's environment. Rainwater runoff and wastewater from households are directed to the ultimate disposal through these drainage channels. In the case of settlements located in river basin areas, the final discharge from these drainage channels flows into the river. Ideally, the discharged water should be clean, so as not to pollute the environment. However, in this settlement's scenario, the wastewater from households tends to be unclean, resulting in environmental pollution in the river.

4.4 Clean Water Services

The aspect of clean water service examines the source of clean water utilized by the residents within this settlement. Upon general observation, the majority of residents in this settlement predominantly utilize clean water sourced from the Malang City Water Utility (PDAM). The clean water provided by the PDAM comprehensively covers the entire area of this settlement due to its central urban location, naturally falling within the coverage area of the PDAM's clean water distribution.

Although the local water utility has provided clean water facilities within the coverage of this settlement, there are still some residents who continue to use water well. This is related to the economic status of the community, which predominantly falls within the lower to middle-



Figure 6. Clean Water Sources in Tridi Village

-income range. Despite the fact that the settlement is situated in a river basin area, very few residents rely on the river as a source of water.

The Brantas River flow causes variable water intensity; during dry seasons, it tends to be shallow, while during rainy seasons, the water current becomes swift. Moreover, the environmental pollution affecting the river has rendered the river water quality unsuitable for consumption. Therefore, despite the settlement's location along the river basin, the utilization of river water as a source is infrequent.

4.5 Wastewater Treatment and Waste Management

The aspect of wastewater treatment and waste management serves as a benchmark for the visual aspect of a settlement. The cleanliness of a settlement is contingent upon the presence and management of wastewater and waste facilities within it. The quality of cleanliness in a settlement has implications for the health of the community residing within. If a settlement neglects wastewater treatment and waste management systems, the settlement will become uncomfortable to inhabit and visit, especially if it has evolved into a tourist village. This will undoubtedly be a factor for consideration among visitors.



Figure 7. Disposal of Wastewater in Settlements

Upon observing this thematic village settlement, it is evident that, in general, the community possesses individual bathrooms/toilets in their respective homes. However, this is not the case for everyone, as some members of the community still utilize public toilet facilities for their daily needs. As for the wastewater disposal system, it directly flows through septic tanks. However, concerning wastewater, it tends to flow directly into the-drainage system within the settlement. For houses located along the riverbank, the wastewater is directed straight into the river area. This situation has led to a considerable accumulation of waste and pollution in the river region. Apart from the debris carried by the river current, pollution also arises from the settlement's wastewater discharge. Thus, this presents a deficiency in the visual quality of this settlement.

The issue related to waste management in this settlement has improved significantly. Prior to the transformation of the settlement into a thematic village, waste was a challenging problem to address. This is due to the lack of awareness and motivation among the community to preserve their environment. Following the area's rejuvenation program and its transformation into a tourist village, the community's awareness has started to shift. What used to be a lack of concern has now evolved into heightened environmental consciousness. The settlement's community is motivated to maintain the cleanliness and tidiness of the area, attracting numerous visitors to this tourist village. This change is beneficial not only for the village itself but also for the settlement as a whole.

Although the issue concerning waste has shown some improvement, there are still several members of the community who lack awareness regarding waste management. Particularly in the riverbank area, numerous individuals continue to dispose of waste in the river vicinity, resulting in detrimental effects on the river environment's sustainability.

4.6 Fire Hazard Security

The fire safety aspect can be assessed based on the availability of fire protection facilities and infrastructure within each neighborhood unit (RT). In this thematic village settlement, there is an absence of fire hazard protection, including both infrastructure such as fire stations and the accessibility of roads within the neighborhood for fire brigade access, which has not been taken into consideration. The narrow and uneven roads make it impractical for fire trucks to enter the settlement. Due to the settlement's location in a riverine environment, a water supply can still be obtained, but it is also contingent on the river's conditions; if it runs dry, accessing water becomes difficult.

The facilities for fire hazard prevention are also not evident in this settlement. Fire extinguishers or -

-fire engines are not available as initial firefighting measures. Although the frequency of fires occurring in this settlement is indeed rare, it is not impossible that if a fire does break out and is not promptly managed, it could lead to a significant conflagration. This is due to the high housing density in this settlement, making it feasible for flames to spread rapidly. The provision of fire prevention facilities and infrastructure in this settlement is highly necessary, given the unpredictable nature of fire disasters. Hence, the establishment of preventive facilities is essential to address fire-related issues within the settlement in the event of a fire catastrophe.

5. Conclusion

From the results of this evaluation, it can be concluded that the Thematic Village Program, which aims to eliminate slum conditions within a settlement, has not yet been fully optimized in its implementation. In the case of this settlement, improvements have only been made to its external appearance for tourism purposes, while other aspects have not been adequately addressed. The social conditions of the community have not yet fully changed, and there is still a lack of heightened awareness to preserve the environment, despite the fact that this settlement is located in a riverbank area. Moreover, concerning wastewater, there is still a lack of environmental consciousness among the community, as waste disposal continues to be directed towards the river area, leading to a considerable presence of debris and waste within the river vicinity. Furthermore, in the settlement, the absence of fire hazard safeguards is notable, which is crucial for preventing fires within the settlement, especially given the high housing density in this particular area. In the future, it is expected that in the implementation of addressing slum areas, both the government and relevant parties can take into account such conditions based on relevant regulations and policies. This way, the handling of slums within a settlement can proceed optimally and align with the intended goals.

This study is limited by its small sample size, and the findings are restricted to the improvement of a settlement's infrastructure in handling slum areas. However, the results can be considered as a representation of the rehabilitated slum settlement in Malang which shows the possible generalisability of the conceptual framework. It is-worth mentioning upgrading the infrastructure on location is necessary with river floodplain can be revitalized without bulldozing the current dwellers.

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