Quality of urban settlements around the University of Jenderal Soedirman (unsoed) Purwokerto

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Abstract. This study aims to determine the quality conditions of settlements in Karangwangkal Village. The study conducted using a quota sampling technique with a total sample of 210 household heads. Quality of settlement data obtained from observations and interviews with respondents were processed using a scoring method and classified using Sturges rule into classes of settlement quality, namely low, medium, and high. The analysis used is quantitative descriptive and presented in the form of a single frequency table and pie diagrams to determine the quality conditions of settlements in Karangwangkal. The results showed that the research area was medium-quality settlements dominated (47%). This study also found that the smaller distance between settlements and campus, the higher the quality of settlements.

Keywords: Settlement, Settlement quality, The existence of campus

1. Introduction

Settlements are all artificial and natural formations with all their completeness as a place to live, either individually or in groups temporarily or permanently to carry out their life [1]. Settlements are defined as a collection of housing in an environment inhabited by humans who have the infrastructure to support all human activities [2]. The settlement as a primary human need, in general, has problems related to aspects of the population, especially in urban areas. Urban settlements continue to experience development in line with population growth [3]. The continuous increase in population growth rate in urban areas causes the need for space for housing to increase so that it can have an impact on the development of uncontrolled settlements (squatter or slum settlements) and result in a decrease in the quality of urban settlements [4].

Residence is one of the basic human needs, an increase in population will affect the increase in housing needs [5]. Population growth that does not go along with additional land functions for settlements will result in the limited availability of space to build houses [6]. The imbalance between population growth and the availability of land for settlements is a common problem [7]. Settlement problems will continue in line with population and socio-economic dynamics. Settlement problems occur due to high population growth (both natural and migratory), increased land prices due to limited land availability for settlements, limited economic capacity, inadequate infrastructure, and lack of orderly supervision of settlement development. These settlement problems can cause a decrease in the quality of settlements [8].

The quality of settlement is the extent of the settlement’s ability to meet the living needs of its residents [9]. Building physical conditions and the availability of supporting facilities and infrastructure determine the quality of settlement. Accessibility to facilities and services also affects settlement and urban development [10]. A good quality settlement must have adequate facilities and infrastructure supported by the behavior of residents who maintain the quality of the settlement. The facilities and infrastructure for the settlement environment are the basic physical features to support the housing environment to function properly [11]. Society as residents of settlements influences the formation of the quality of settlement [12]. The quality of settlement is related to the building’s physical conditions, house facilities, and environmental conditions around the settlement. High levels of population density and inadequate
maintenance of buildings are often associated as the causes of a decrease in the quality of settlements [13].

Karangwangkal Village is administratively a part of Purwokerto City. The development of urban areas is relatively more dynamic and complex than the rural areas [14][15]. As urban areas develop, the population also continues to increase due to natural growth and migration [16]. Apart from its location in the middle of the city, the existence of the Unsoed campus in Karangwangkal Village has caused the rapid development of the region as an educational area. The development of this area is supported by the temporary migration carried out by students to study, which allows residents around the campus to open businesses such as boarding houses, food stalls, photocopy services, street vendors, and so on to meet student needs [17]. The presence of immigrant students encourages people living around the campus to open a business to meet their needs for goods and services [18].

A large number of student needs, especially housing, has made many areas around the campus build boarding houses which of course have an impact on residential conditions, both positive and negative [19]. The positive impact on the quality of settlements is that the development of businesses to support campus activities can increase people's income so that the money set aside for maintenance and construction of quality houses are getting bigger. However, the development of these supporting activities also led to an unavoidable increase in population. The increase in population causes an increase in the need for settlements [20]. The demand for housing and the pressure of economic activity in urban areas is increasing due to more and more people migrating to urban areas [21]. Due to the rapid development of urbanization, the environmental problems of settlements in various cities are increasing [22].

The existence of universities has become a magnet for regional development and population development as seen from natural growth and migration [23]. Temporary migration carried out by students affects increasing the population in Kelurahan Karangwangkal. This increase in population is followed by an increase in land demand for settlements and other supporting facilities. The impact of this migration is an increase in building density due to increased student needs [24]. Munggiartia & Buchorib in their research stated that the development of an educational orientation area around the Unsoed Campus cause to emerge various supporting activities to meet the needs of students so that it can lead to changes in land use and closure as well as changes in building density [25]. Physical conditions, environmental conditions, facility availability and economic activities in an area can affect settlement conditions. The closer to the center of population activity, the higher settlements density [26].

The imbalance between the population and land availability for settlements can lead to the emergence of slum settlements in urban areas [27]. Settlement development can become an urban problem due to rapid population growth [28]. Rapid population growth and spatial use complexity have an impact on the emergence of slum settlements [29]. Slum settlements are characterized by insecure residential status, inadequate access to clean water, sanitation, and other basic infrastructure and services, poor housing quality, and overcrowding [30].

The Decree of the Regent of Banyumas Number 050/1444 of 2014 about the Location of Urban Slum Areas in Banyumas Regency states that Karangwangkal Village is indicated in a slum area [31]. This situation shows the urgency of research so that the quality of settlements in Karangwangkal can be studied further. This study aims to determine the quality conditions of settlements in Karangwangkal Village. The expected benefits from this research are to contribute theoretically to broaden insight and knowledge in the field of urban geography regarding the quality of urban settlements in Karangwangkal, as well as providing information that can be used as a reference for local governments or policy makers in determining development policies or settlement area arrangements.
2. Research Methods

This research was conducted in Karangwangkal, which is one of the villages in the city of Purwokerto. Karangwangkal is one of the areas that gets direct influence from the existence of the Unsoed campus. Karangwangkal is located in the middle of the city so that it has the availability of quite complete socio-economic facilities and is expected to represent the conditions of urban settlements.

Primary data collection was through observation and field interviews with respondents. Respondents were determined using a quota sampling technique, with a total sample of 210 household heads. The quota sampling characteristic referred to in this study is the settlement cluster based on its distance from Unsoed campus. The settlement clusters are settlements with distances of fewer than 100 meters, 100-300 meters, and more than 300 meters from Unsoed campus, which are determined using the buffer tool in ArcGIS software.

Research data on settlement quality which includes aspects of the physical conditions of building, house facilities, and environmental conditions are processed by scoring on each indicator of each aspect. The total score of each indicator from all aspects of settlement quality was then classified using the Sturges rule into three classes of settlement quality, namely low, medium, and high. The data were analyzed using quantitative descriptive techniques which were presented in the form of a single frequency table and pie diagrams to determine the quality conditions of settlements in Karangwangkal.

3. Results and discussion

The quality of settlements is assessed from three aspects: building physical conditions, house facilities, and environmental conditions.

3.1. Building physical conditions

Building physical conditions consist of indicators in the form of house building type, function, level, material, the widest type of roof, the widest type of floor, and the condition of the house. The physical conditions of building in the study area, in general, can be seen in Figure 1.

![Building Physical Conditions](image)

**Figure 1.** Classification of building physical conditions

Most of the physical conditions of buildings in the study area were included in the medium class (54%), followed by the high class (25%), and low class (20%). Most of the types of housing in Karangwangkal are permanent (95%) with the dominant function of the house building as a regular residence (74%). The building function previously mentioned was assumed to be in better condition than the dual function or as a mixed residence because it was generally better maintained. However, many buildings function as mixed dwellings (26%). Most of the buildings functioned as boarding houses and a small part was used as stalls, laundry, and others.

The most common building materials for houses are bricks/concrete blocks (66%) and mixed bricks/concrete blocks (34%). The widest type of roof between zinc and tile has a small difference (54%:43%), while the rest uses asbestos. The most dominant type of floor used is ceramic (89%), while
the rest is tiles. The condition of the houses in the study area as a whole consists of good (57%), moderate (41%), and poor (2%). The house buildings in the study area showed no permanent houses, no use of bamboo/wood/plywood as the main building material, and the absence of earthen floors. This shows that the building’s physical conditions are sufficiently feasible.

3.2. House facilities
House facilities describe the parts of the room in a house with specific uses. House facilities include the availability of a terrace, living room, family room, dining room, bedroom, kitchen, and bathroom/toilet. The difference in the availability of house facilities can affect the quality of the settlement. In general, the percentage of house facilities in the study area can be seen in Figure 2.

In general, housing facilities in the study area were dominated by the high class (67%), while a small proportion included in the medium (31%) and low (2%) categories. The data obtained shows that more than 50% of the houses already have terraces, living rooms, family rooms, dining rooms, bedrooms, kitchens, and bathrooms/toilets. Houses that do not have these facilities generally have narrow space and land. There are 3% of houses that do not have a living room due to limited space so that the living room is combined with the family room. Bedroom facilities in 2% of settlements in the study area are also not available due to limited space so that the bedroom is not separated from the family room. In the study area, there are also 2% of houses that do not have a kitchen and 1% of houses that do not have a bathroom/toilet because the kitchen is still accompanied by their parents whose house is still close by, as well as bathing and washing activities that are still shared. The availability of housing facilities in the study area is generally complete and has a decent condition.

3.3. Environmental conditions
Environmental conditions affect the quality of settlements as well as the health and comfort of their residents. This parameter consists of indicators in the form of the presence of trees, road conditions, air conditions, garbage disposal, waste disposal, clean water sources, and drainage conditions. In general, the percentage of residential environmental conditions in the study area between high, medium, and low classes has a value that is not much different. The environmental conditions with high and medium class are equal to 34%, while the environmental conditions with low class are 31%, as shown in Figure 3.
Figure 3. Classification of environmental conditions

The results showed that 91\% of the waste was disposed of in a garbage bin and transported to the landfill. As much as 99\% of the condition of the clean water source used is classified as clear, although 97\% of the water source comes from groundwater. For waste disposal, 62\% of the houses already have sewerage. This means that most of the soil and clean water sources in the study area are not polluted by waste. More than 50\% of the houses also have relatively good air and drainage conditions. However, as many as 46\% of the houses in the study area do not have any trees, and there were still 3 houses whose roads were classified as damaged due to bad road surfaces.

The total score from the aspects of the building physical conditions, house facilities, and environmental conditions of the settlement is shown in Table 1.

| Class   | Score  |
|---------|--------|
| Low     | <46    |
| Medium  | 46 - 50|
| High    | >50    |

In general, the quality of settlements in Karangwangkal is in medium condition (47\%). The quality of settlements that are included in high condition is also quite a lot, reaching 30\%, and others are in low condition (23\%). The classification of the quality of settlements in Karangwangkal Village can be seen in Figure 4.

Figure 4. Diagram of settlement quality
These results are similar to several previous studies, namely that conducted by Ardiantari & Giyarsih (2015), it was found that the quality of settlements on the banks of the Bengawan Solo river was in the moderate category reaching 52% [32]. Research by Adi et al., (2016) found that 81.81% of the residential environment in Penyabangan Village was in the medium quality category [11]. As well as Zuhro et al. (2019) obtained the quality of fishing settlements in the coastal area of Anturan Village, Buleleng District which is also in the medium quality category [33]. Based on the research mentioned above, the quality of the medium category settlements is influenced by the constituent components or aspects such as the building physical conditions, house facilities, and environmental conditions.

The quality condition of settlements in Karangwangkal can also be seen based on the distance from the Unsoed Campus (Figure 5). The quality of settlements in Karangwangkal in each distance class is different. In each settlement cluster, there are low, medium, and high quality settlements, but the number or percentage varies. Settlements that are less than 100 meters from the Unsoed Campus tend to have better quality than settlements within 100-300 meters or settlements that are more than 300 meters from the Unsoed Campus. As many as 54% of the houses at a distance of fewer than 100 meters are dominated by high-quality conditions. Houses at a distance of 100-300 meters from the campus are dominated by medium quality conditions (53%), while houses at a distance of more than 300 meters from the campus are dominated by low-quality conditions (43%). Therefore, it can be concluded that the closer the settlements are to the Unsoed Campus, the higher the quality of the settlements, and vice versa. This situation can occur because the closer the settlement to the campus is, the higher the business opportunities will appear, increasing income. This condition is under the research conducted by Tae et al. (2019) which shows that the closer to the center of the college campus, the greater the economic potential [22]. Research conducted by Hapsari & Pradoto (2013) regarding the effect of campus existence on settlements also resulted in similar conditions [21].

The increase in income indirectly affects the ability of the community to provide for home care costs and build better quality houses. The findings of this study are consistent with the results of research by Mayasari & Ritohardoyo (2012) which states that better home care will result in better quality settlements [34]. Another study conducted by Momuata et al. (2020) also stated that the improvement in the economic conditions of the community affected improving the quality of settlements [2].

Settlements that are less than 100 meters from campus have the best quality of settlements than settlements located 100-300 meters and more than 300 meters from campus. This condition can be due to the existence of businesses such as boarding houses, grocery stalls, food stalls, laundry, photocopy services, etc. to support the needs of students, most of whom live around the campus. People who take advantage of these business opportunities tend to earn higher incomes [35].
4. Conclusion
Based on the results of the analysis and discussion in this study, it can be concluded that the condition of the quality of settlements in Karangwangkal Village is generally dominated by the medium class (47%), followed by high class (30%) and low class (23%). This study also concluded that the closer the settlement location to the Usoed Campus, the higher the quality of the settlement.

5. Acknowledgements
This paper is a further development of an undergraduate thesis draft written by the first author under the guidance of the second author. The author would like to thank all respondents in the research area who have been willing to be interviewed in this study.

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