The study of physical condition of settlement in Penjaringan – Jakarta to build liveable human settlement

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Abstract. High population growth due to urbanization has led to the emergence of many densely populated and uninhabitable settlements in Jakarta. Jakarta has 445 RWs which are categorized as unfit for habitation, one of which is the Penjaringan sub-district, and the government will organize it. The purpose of this study is to determine the physical condition of the settlement environment in Penjaringan and the design solutions needed. The method used in this study is descriptive-qualitative method. The results of the study show that the Penjaringan area requires redevelopment in a portion of the planning area using 8 design criteria, namely land use, architectural character, landscaping, circulation and parking, property maintenance, signage, site furnishings, and lighting and utilities.

Keywords: liveable settlements, physical condition, redevelopment.

1. Introduction
Populations growth and population density in Jakarta continues to increase from year to year. This condition is generally caused by urbanization. The high rate of urbanization that is occurring in Jakarta has a negative impact that has caused the emergence of many dense settlements in Jakarta, and is not habitable or slums. This condition occurs due to high urbanization that cannot be controlled. According to Law No. 1 of 2011, slums are settlements that are not habitable due to irregularity in buildings, high building density, and the quality of buildings and facilities and infrastructure that do not meet the requirements [1]. Based on the Regulation of the State Minister of Public Housing of the Republic of Indonesia No.22 / PERMEN / M / 2008 there are 6 habitable environmental criteria [2] namely 1) Roads, 2) Sanitation, 3) Drainage and flood control, 4) Solid waste, 5) Drinking water, 6) Electricity. In addition, there are 6 indicators of slums: 1) Lack of basic services, 2) Uninhabitable housing, 3) Settlements with high density, 4) Unhealthy living conditions and at-risk locations, 5) Lack of guaranteed residential rights, 6) Poverty and social exclusion.

Based on the Governor Regulation of the Special Capital Province of Jakarta No.90 of 2018 there are 445 RWs that fall into the slum category and are planned to be structured by the DKI Jakarta provincial government. One area planned for structuring is the Penjaringan area, North Jakarta. This study discusses the identification of the physical condition of non-habitable residential areas in the area in order to propose a design solution for this area.

In the book titled Commercial Corridor Urban Design Guide (Redevelopment Design Concepts & Guidelines) there are 8 criteria that need to be considered, namely land use, architectural character,
landscaping, circulation and parking, property maintenance, commercial signage, site furnishings, and lighting and utilities [3].

2. Methodology
The study of the physical condition of settlement in Penjaringan, Jakarta Utara to build livable human settlement was conducted using descriptive method.

Collecting data was done through literature studies on livable human settlement concept; design guidelines for human settlement, including precedents from similar projects, and field observations. The analysis is carried out by observing the user aspects, the environmental aspects, and the building aspect.

3. Result and Discussion
In Penjaringan, the average building there still uses triplex as their residential wall. In addition, the average house located in the middle or far from the road causes the house to not get enough natural lighting. Arrangement of residential units in Penjaringan area is irregular. Road conditions in the area can only be passed by 1 person (alley / labyrinth).

The filtering community generally opens a grocery shop by using the road area as a place to sell, so it is prone to accidents. Until now the Penjaringan area (Kampung Luar Batang) is located around 60-100 cm below sea level, making it prone to tides and floods.

![Figure 1. Condition of existing settlements in Penjaringan.](image)

Houses or dwellings that are categorized as uninhabitable and irregular are located on the banks of the river (A-D). Many building materials are semi-permanent. The area is also a sub zone of the green belt, so that a complete demolition can be done.
The following (see Table 1) are the categories and classifications of decent and non-habitable houses in the Penjaringan area of North Jakarta using indicators or standards from Mayor Regulation No. 5A of 2008 concerning Guidelines for the Implementation of Providing Assistance for Construction / Improvement of Uninhabitable Homes [4, 5].

**Table 1.** Condition of existing houses in Penjaringan.

| Criteria                  | Indicator                                                                 |
|---------------------------|---------------------------------------------------------------------------|
| The house is not livable  | • Average floor area per occupant < 4 m².                                  |
|                           | • Do not have MCK access.                                                 |
|                           | • Buildings are not permanent.                                            |
|                           | • Bad condition.                                                          |
|                           | • Has no spatial division.                                                |
| Livable home              | The minimum of the home component group is:                               |
|                           | • Ceilings                                                                |
|                           | • Wall                                                                    |
|                           | • Floor                                                                   |
|                           | • Bedroom window                                                         |
|                           | • Ventilation                                                            |
|                           | • Permanent buildings                                                    |

In the northern area of the residential area there are still many buildings that are habitable although irregular. In this part of the area it is recommended to keep the settlement. Local people can also be invited to improve the housing environment and the physical quality of the dwelling according to their economic capabilities [6]. The arrangement is still done by tidying the road and providing street lighting and road markers.

The redevelopment concept for Penjaringan settlement area is carried out following 8 criteria that need to be considered, namely land use, architectural character, landscaping, circulation and parking, property maintenance, signage, site furnishings, and lighting and utilities. The redevelopment recommendations are divided into two types of recommendations: Some areas that are rated as having the highest density, are dominated by uninhabitable housing, and are on the green belt are
recommended for complete demolition and are replaced by vertical dwellings or flats. While some other areas that still have a lot of decent homes are recommended for environmental management such as the arrangement of road lanes and area markers. Regional design criteria according to the guidelines include:

1. **Architectural character**
   Create building masses that strengthen spatial space for circulation and open space. Providing an open area or space between buildings so that it can function as an outdoor activity space.

2. **Landscaping**
   Creating landscaping that is suitable for the site and climate. Using exterior materials, colors, and textures related to the natural environment. In the green zone, it is determined which tree species can be used in the green zone.

3. **Circulation and Parking**
   Some design criteria points for circulation and parking are:
   - Prepare a secure parking lot
   - Accommodating roads for vehicles
   - Increase safety for pedestrians
   - Establish a circulation system that minimizes conflicts between pedestrians and vehicle.

4. **Commercial Signage**
   There are several design criteria for commercial signage, namely:
   - Prepare appropriate and consistent instructions to show identity, direction, and security.
   - Communicate the required direction information clearly.
   Signage or road directions are needed especially for tourist attractions around the area such as the Luar Batang Mosque and the Maritime Museum. Directions to places of interest around the area are needed because there are many foreign and local tourists visiting the area.

5. **Site Furnishings**
   There are several design criteria for site furnishing:
   - Create a uniform appearance along the corridor and provide comfortable and inviting environment for visitors.
   - Setting up supporting facilities in the environment or region.
   Prepare park chairs that are placed especially in public areas in the planning area. It also provides a trash can at points specified in the planning area.

6. **Lighting and Utilities**
   There are several design criteria points for lighting and utilities, namely:
   - Provides a safe, attractive and design environment that is consistent with provide lighting in several areas in the region.

4. **Conclusion**
   Penjaringan area is one area with a very dense population, which raises various problems within the region itself. This is very unfortunate considering the area is located between 2 tourist destinations, namely Luar Batang Mosque and Maritime Museum. With a very high population density and generally semi-permanent housing conditions, this area is classified as uninhabitable. Only one third of the area that can be recommended to be maintained, because the condition of the house is still included in the category of livable. Whereas the other two-thirds of the area is recommended for a complete demolition and redevelopment with the proposed construction of vertical housing or flats.
With redevelopment, it is expected that a livable settlement can be realized and a sustainable environment can be achieved.

The redevelopment concept based on 8 design criteria in the Commercial Corridor Urban Design Guide book - Redevelopment Design Concepts & Guidelines can be used to develop design ideas for regional structuring. These criteria include land use, architectural characters, landscaping, circulation and parking, property maintenance, signage, site furnishings, and lighting and utilities. Based on these guidelines it can be seen the things that need to be considered in redeveloping the area.

References
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