CHAPTER I
PREFACE

1.1 Background

The city will be the main habitat of human life in the future. In 2018, studies done by the UN stated that 55% of people currently live in urban areas. This number is expected to grow to 68% by the year 2050 (United Nations Department of Economic and Social Affairs, 2018). As of 2010, a government census on the city of Jakarta showed that 9.6 million people live in the city. However, the UN has predicted that Jakarta's population will grow to 12.4 million by 2025, and 15.9 million by 2050 (Housecroft, Sharpe, and Gil Ruiz, 2004).

Due to rapid urbanization in developing countries, urban growth and the increase of residency in slums and informal settlements are becoming major problems in cities. As demand for housing in cities continue to grow, so does the population of people who live in slum. Almost 30% of all people living in cities live in slums in the year 2014 (Sminkey and Le Doux, 2016).

In developing countries, slums are usually the product of large rural-urban migrations into cities. There are several defining characteristics of slum; nonexistent levels of services such as lack of communal facilities, potable water, and waste removal. When cities don't provide adequate public housing for lower income segments, then the size and population of slums grows. Proper planning and development of affordable housing is one of the most important agendas in tackling the problem of slums. (Sminkey and Le Doux, 2016)

Public housing has to be able to solve three main issues. First, it has to be dense enough so that the project can pay for well-located land in city centers. Secondly, it must not be overcrowded, because this can lead to safety and security issues among the residents. Finally, the housing has to be left with the possibly to grow, so that the area can achieve a middle-income standard over time (Aravena, 2011).

Public housing programs for low income citizens was started by the Indonesian government in the 1950's. They have several programs, including landed houses and apartment projects. However, the standard typology does not

answer the constraints of public housing. A hybrid typology that mixes sufficient density yet still has the ability to grow is necessary to tackle the problem of public housing in Jakarta. (Priatmodjo, 2018)

Due to this problem in affordable public housing, research is needed to find an architectural typology that can fix the problem. This typology will have to be dense enough to be affordable in the city center, yet have the flexibility to grow. With this research, housing redevelopment of slum areas can improve the quality of life of the residents, as well as reducing the amount of sprawl in the city.

1.2 Problem Formulation

From the data above, we can conclude that there are several key issues that will underline this research:

- Current typology of public housing does not densify the city (landed houses), or is not flexible in growth (apartments).
- Slum areas in Jakarta lacks basic services such as communal facilities and sanitation. Number, size, and residents of slums continues to grow in Jakarta.

1.3 Research Purpose

This research is made with the purpose of:

- Improve the quality of live in the slums and informal housing of Jakarta by designing growing architecture.
- Formulating design criteria for a new typology of affordable public housing which can be built within Jakarta which has the ability to grow.

1.4 Research Benefit

The research done in the paper is aimed to explore a new typology of affordable public housing in Jakarta. This design must have the ability of redeveloping existing slums in the city. Redevelopment in these slums can improve the poor living conditions of lower income segments.

1.5 Scope of Research

The scope of this research will focus on the redevelopment of existing slum in city centers through growing architecture. In order to derive a design criterion from these typologies, analysis of related architectural theories of the subject is also needed. The theories, precedents, and case studies will also provide the criteria for the project site selection.

1.6 Research Methodology

The methodology used in this research will involve qualitative and experimental methods. The qualitative method with a grounded theory approach will be used to identify an explanatory theory from the data collection of the existing condition of housing in the site. This approach will be carried out in the form of observations on the site in its natural setting/ existing condition. The theories and observations of this research will be evaluated, combined, and applied to the condition of the project. As for the theories used in this research, it will be divided into two segments: architectural theories and non-architectural theories. The non-architectural theories will be on topics of the economics aspects of public housing and its users. This process of evaluation will make become the primary data to formulate the design variables for the new typology.

After the analysis from the qualitative approach is done, an experimental approach will be used to test the affect that the variables have on the design. These variables will be formulated from the theories and observations of the qualitative method. The variables that have the greatest impact on building density, growth, and sustainability will be tested through various experiments (Groat & Wang, n.d.).

1.7 Thought Process