

## **VERTICAL RESIDENTIAL DEVELOPMENT IN MEDAN CITY IN SUPPORTING SUSTAINABLE DEVELOPMENT**

**Lasma Melinda Siahaan<sup>1</sup>, Erlina<sup>2</sup>, Badaruddin<sup>3</sup>, Rujiman<sup>4</sup>**

<sup>1</sup>Program Studi Doktor Perencanaan Wilayah, Sekolah Pascasarjana Universitas Sumatera Utara  
([melinshn@gmail.com](mailto:melinshn@gmail.com))

<sup>2</sup>Program Studi Akuntansi Universitas Sumatera Utara ([erlina@usu.ac.id](mailto:erlina@usu.ac.id))

<sup>3</sup>Program Studi Sosiologi Universitas Sumatera Utara ([badaruddin@usu.ac.id](mailto:badaruddin@usu.ac.id))

<sup>4</sup>Program Studi Ekonomi Pembangunan Universitas Sumatera Utara ([rujiman.ira66@gmail.com](mailto:rujiman.ira66@gmail.com))

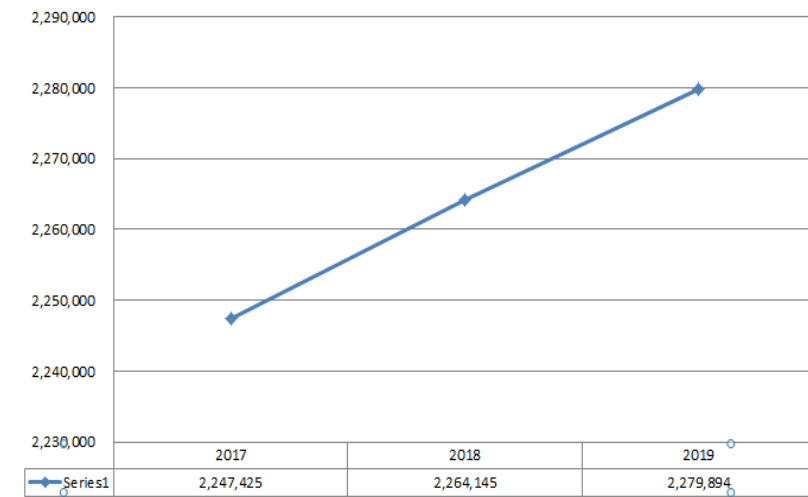
**ABSTRACT.** Regional development strategy emphasizes economic growth, then growth and employment opportunities, growth and equity, emphasis on basic basic need approach, growth and the environment and sustainable development . Regional development that can cause spatial changes in urban areas will encourage population growth, thus forming a new social and cultural life for residents in urban areas. This phenomenon of spatial change will encourage revolutionary changes to the spatial area. The current condition of spatial change is the designation of new activities such as residential areas for community dwellings. Housing development is a multi-sectoral activity and is closely related to community welfare. In its development, the housing sector, which should be the spearhead in urban development, often contributes serious problems for life in the city itself. Many problems stem from the housing sector, such as the unavailability of a proper housing environment. This problem is often a problem that cannot be handled optimally. Not to mention, the growth and development of housing that does not pay attention to the interests of the community from various circles, especially the low-income community, can create gaps and difficulties for MBR in obtaining decent and affordable housing. Vertical housing is a new breakthrough in minimizing land use conversion for housing, so that the problem of limited land can be solved and land use becomes more optimal. In addition, with the construction of vertical housing, it will be able to reduce the cost of buying land which is already very expensive. In the future, in developing vertical housing in addition to meeting the community's needs for residential housing, it is necessary to design sustainable housing development policies by prioritizing community participation. Therefore, in accordance with public perceptions regarding vertical housing, the development of vertical housing must lead to sustainable development that pays attention to social, economic and environmental aspects.

**KEYWORDS:** Vertical Residential, Sustainable Development, Medan City.

### **1 INTRODUCTION**

The population is both the subject and the object of development. This is because development is carried out by the population and is aimed at the welfare of the population. The rapid population development from time to time is caused by the death rate which is smaller than the birth rate (Hummel, 2020). In the study of population in developing countries, fertility is a determinant factor that is more influential than other factors on the rate of population growth. Todaro and Smith (2009) state that there is a relationship between a country's economic growth and the birth rate and population growth rate by conducting a fertility study in several developed and developing countries.

Therefore, very rapid population growth can cause problems, especially in urban areas. This is because if the growth and population is higher, it must be followed by the addition of various social facilities needed in order to support the quality of life of the community itself (Rumengan, 2019). The population growth of Medan City continues to increase every year. The relatively increasing rate of population growth requires the government to provide social facilities that meet the needs of the community. The following is a graph of the population growth of Medan City.



**Figure 1. Graph of Population Growth in Medan City 2017-2019**

If it is associated with the housing sector, the higher the population growth in urban areas, the need for housing will increase in urban areas. It is a challenge for city governments to meet the increasing demand for housing in response to population growth that can threaten the resilience of their cities (Equere, 2021). Demand and housing needs are strongly influenced by the increase in population. The population of Medan City continues to increase every year. This population growth indicates that the community's need for housing as a place to live is getting higher which further increases the demand for residential housing (Zhang, 2020).

Therefore, the provision of affordable housing for every level of society, especially low-income people, by taking into account the availability of green open space is one of the important tasks for local governments. The development of the housing sector is one of the important sectors that can affect development in urban areas (Madichie, 2016). The development of sustainable housing development must consider various aspects such as social, economic, location and environmental aspects as pillars of sustainable development. The purpose of sustainable housing development is to develop, organize and rejuvenate the residential environment in urban areas so that it can suppress slum housing (Bakar, 2011).

These three aspects must be an absolute consideration in designing policies related to the development of vertical residential development in order to support sustainable housing development in the city of Medan, especially for low-income people. With the development of sustainable housing, it is hoped that the construction of residential housing for the community can be fulfilled while preserving the environment and improving the quality of life of the community.

## **2. LITERATURE REVIEW**

### **2.1. Sustainable Housing Development**

Sustainable development is a development concept that has long been proclaimed either by a group of people certain countries, and the United Nations (UN). The concept is based on human concerns about the sustainability of the place where they live, and what is more important for humans is how to preserve the current place of residence so that it can be passed on to future generations (Pakir, 2012).

The principle of sustainable development is the need to improve the quality of life of man when this with the need to maintain or improve the natural resources, so that people have the opportunity to improve their quality of life according to the needs. The principle of sustainability is a non-declining where there will be equitable across time (temporal) or generation ( intergenerational equity ) so that every person in principle the need to maintain the balance of the environment (Ganiyu, 2016).

Sustainable housing development is closely related to sustainable urban development, it is an effort to improve the social, economic and environmental conditions in which everyone activities. The essence of sustainable housing development is an effort to improve the quality of life in a sustainable manner. Construction of housing, including in it the development of cities in a sustainable manner as

efforts are ongoing to improve the social, economic, and environmental quality as a place to live and work everyone (Yip, 2017).

Houses are sustainable must meet five requirements base that is enjoyed by the occupants well for when this or that will come up are:

1. Support the improvement of the quality of life productivity of residents both socially, economically and politically. This means that every member of the residents is inspired to do their job better.
2. Does not cause environmental disturbance in any form since construction, utilization and later if it must be destroyed. The measure used for disturbances to the environment is the effectiveness of energy consumption.
3. Supporting increased mobility of the occupants' physical and spiritual well-being. This means that residents experience continuous improvement in the quality of physical and non-physical life.
4. Maintaining a balance between the physical development of the house and the socio-economic mobility of its inhabitants. At first the physical state of the house was higher than the non-physical state, but this turned around after the occupants were settled in the house.
5. Opening up a large role for residents/owners in decision-making on the process of developing houses and community units where they interact with neighbors (Saidu, 2020).

## 2.2. Vertical Residential Development

The vertical housing system is a collection of physical sub-systems related to technical technology and non-physical sub-systems in the form of values, which are influenced by social, economic and cultural aspects. In relation to the planning for the development of sustainable vertical housing development in the city of Medan, various aspects need attention in order to improve the quality of the development itself. In this study, there are three important aspects that are considered to be very influential in the development of vertical residential development with sustainable development principles, namely social aspects, social aspects, and environmental aspects (Boy, 2021).

## 3. METHODOLOGY

Quantitative data obtained from the results of distributing questionnaires randomly to the people of Medan City. Data from the questionnaire will be assessed using a Likert scale. The results of the data from the questionnaire in the form of statistical data were then tabulated and analyzed descriptively.

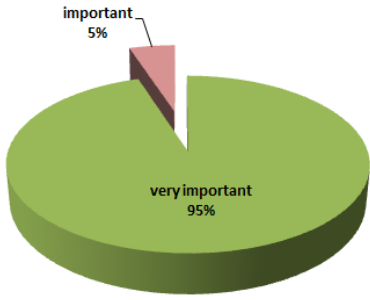
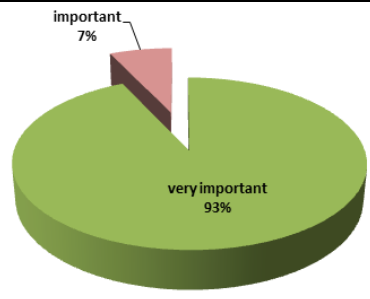
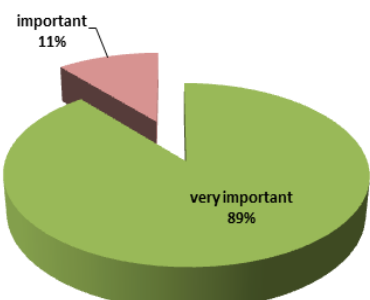
## 4. DISCUSSION

### 4.1. Research result

Based on a questionnaire that has been conducted to 100 respondents to find out the public's perception regarding the Vertical Residential Development in Medan City in supporting sustainable development are as follows:

**Table 1. Research Results**

No.	Indicator	Diagram	Information
1.	Physical house, including: a. House unit model b. Number of rooms in the house c. Building materials/ materials d. Spacious room size		As many as 86% of 100 respondents stated that the physical house is a very important choice in the development of vertical housing in the city of Medan.

2.	The quality of the house, including: a. Air circulation b. Lighting c. Security d. Sanitation e. Clean water f. Availability of facilities	 <p>A 3D pie chart with a green slice representing 'very important' at 95% and a red slice representing 'important' at 5%.</p>	As many as 95% of 100 respondents stated that the quality of the house is a very important choice in the development of vertical housing in the city of Medan.
3.	The location of the house, including: a. Public transportation access b. Accessibility	 <p>A 3D pie chart with a green slice representing 'very important' at 93% and a red slice representing 'important' at 7%.</p>	As many as 93% of 100 respondents stated that the location of the house is a very important choice in the development of vertical housing in the city of Medan.
4.	Home environment, including: a. Green environment b. Clean environment c. Healthy environment	 <p>A 3D pie chart with a green slice representing 'very important' at 89% and a red slice representing 'important' at 11%.</p>	As many as 89% of 100 respondents stated that the home environment is a very important choice in the development of vertical housing in Medan City.

As many as 95% of 100 respondents stated that the quality of the house is a very important choice in the development of vertical housing in the city of Medan. As many as 93% of 100 respondents stated that the location of the house is a very important choice in the development of vertical housing in the city of Medan. As many as 89% of 100 respondents stated that the home environment is a very important choice in the development of vertical housing in Medan City.

## 5. CONCLUSION

The development of vertical housing in Medan City can be carried out especially in accordance with public perceptions regarding vertical housing. The development of vertical housing must lead to sustainable development that takes into account social, economic and environmental aspects. Some indicators that can be used in the development of vertical housing are the physical house, the quality of the house, the location of the house and the home environment.

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