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Optimization Analysis Of The Use Of Vacant Land At Komplek Taman Setia Budi Indah I Medan

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Abstract
Komplek Taman Setia Budi Indah 1 Medan Sunggal (Tasbih 1) around 98% of both empty lots and houses have been sold, but it is necessary to think about improving the comfort of the residents by maximizing the assets that are still there and have not been managed such as the utilization of vacant land. For that, there is a need for infrastructure improvements and the addition of new attractive facilities that can be enjoyed by the residents of the complex, which can increase the comfort of living in the complex. In Medan's Taman Setia Budi Indah housing estate, it currently has an asset in the form of empty land that has not been utilized at all with an area of -/+ 36,000 m2. It is necessary to analyze the Highest and Best Use of the utilization of the empty land, the result of which is expected to be a win-win solution that can meet the needs of the developer and the residents of the complex. The type of research conducted is quantitative descriptive research where the data obtained from the research population sample is analyzed according to the statistical methods used and then interpreted. The research starts from December 2021 until April 2022. The data analysis on the alternatives selected in this research uses the principles of Highest and Best Use, namely (1) Analysis of the types of alternatives viewed from the legal aspect. (2) Analysis of alternative types viewed from a physical aspect. (3) The analysis of alternative types is reviewed from the aspect of maximum productivity. (4) Analysis of financially eligible use (Capital Budgeting) Capital Budgeting is the entire process of planning and decision-making regarding the release of funds where the return period of the funds exceeds one year (capital expenditure). . From the results of the analysis of the legal aspect and the analysis of the physical aspect, there are 2 alternative properties, namely the first Convention and the second Convention & Food Court. From the results of the Highest and Best Use analysis that has been done between the first alternative of the Convention and the second alternative of the Convention & Food Court, the first alternative of the Convention's land value is Rp10,316,827/m2 with the highest productivity of 210.55%, It can be concluded that the allocation of land for property development in the Komplek Taman Setia Budi Indah 1 area with the Convention building is the best use alternative for the residential land of Komplek Taman Setia Budi Indah.

Keywords: *Highest and Best Use, Legal Aspect Analysis, Physical Aspect Analysis, Financial Aspect Analysis, Maximum Productivity Aspect Analysis.*

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1. Introduction

The Taman Setia Budi Indah 1 (Tasbih 1) complex, located in Medan Sunggal District, is one of the largest residential areas in Medan. Currently, approximately 98% of the lots and houses have been sold, resulting in the complex developing into a densely populated area. However, the comfort and quality of life for residents are not yet fully guaranteed. One untapped potential is the developer's vacant land, covering approximately 36,000 m². This land holds strategic value because it can be developed to support improved public facilities, provide green open space, and develop commercial properties relevant to community needs.

Field observations and initial interviews with several residents revealed several fundamental issues. First, the road infrastructure within the complex is severely damaged and requires repair. Second, the existing drainage system is inadequate to accommodate water discharge during the rainy season, primarily due to the reduction in infiltration areas due to the massive housing development around Medan Sunggal. Third, the developer has not introduced new innovations, either in terms of home design, cluster development, or marketing strategy. Two new clusters are currently under construction, but they are managed by a third-party company at a relatively high and uncompetitive price. Fourth, public facilities in the complex are still limited and haven't evolved to meet the needs of residents. Fifth, although security has improved with the arrival of a new security vendor, long-term security management innovation is still needed.

These various issues highlight the need for strategic planning in managing residential areas. On the one hand, infrastructure improvements and the provision of new facilities are crucial for enhancing resident comfort. On the other hand, utilizing vacant land can be a sustainable solution to support developers' financial needs, both in terms of operational costs and maintenance. Thus, there is potential to create a mutually beneficial development model for both developers and residents.

Academically, studies on the utilization of vacant land assets in residential areas using the Highest and Best Use (HBU) approach are still relatively limited, particularly in the context of large cities in Indonesia. Most previous research focuses on HBU in large-scale urban areas, commercial land, or central business districts, while its implementation at a micro-scale, such as residential areas, has not been explored in depth. Therefore, this research is urgently needed to fill this gap and provide practical contributions to developers in formulating land management strategies oriented toward resident comfort and area sustainability.

Based on this description, this study aims to analyze the utilization of vacant land in the Taman Setia Budi Indah 1 Complex using the Highest and Best Use approach. The results of the analysis are expected to produce optimal land use alternatives, thus providing a win-win solution for developers and residents, while enriching the academic literature on land asset management in urban residential areas.

2. Literature Review

Understanding The of Concept of Highest and Best Use

The highest and best use (HBU) is defined as the most possible and optimal use of a property, which is physically possible, has been adequately considered, legally permitted, financially feasible, and produces the highest value of the property (which is summarized as 4 (four) criteria, which are as follows (Mulyana, 2019) :

1. Legally permissible (legally permissible),
2. Physically feasible
3. Economically / financially feasible (financially feasible)

Provide the highest value / maximum productivity (maximally productive)

Understanding Property Appraisals

In property valuation, what is actually valued is "real property". That is the legal right that is based on the possession of land or land with all other derivative rights that are attached both on the

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land and under the land. And the physical construction that is above or below the ground is called real estate according to the Indonesian

Appraisal Standard SPI Year 2015 (MAPPI, 2015). According to KPSPI (MAPPI, 2018), the market value of a property or asset reflects its use according to the market and not purely from its physical status. This usage will of course be different for each user depending on the effort made.

Appraisal, is a work process carried out by an appraiser in providing an estimate and opinion (opinion) on the economic value of an object (property) whether tangible or intangible, based on an analysis of objective and relevant facts using certain methods at a certain time (MAPPI, 2018).

Appraisal is a combination of knowledge or science and art (science and art) in estimating the value of an interest found in a property with a specific purpose and at a set time and by considering all the characteristics of the property including the types of investment that available on the market (Hadi, 2018). Assessment is called science because it performs calculations using formulas or formulas.

Assessment Approach

According to Stephen F. Fanning in Kustamar et al (Kustamar et al., 2013, p.24), to perform the Highest and Best Use analysis, the following analysis tools are also used,

1. Market data approach (Market Data Approach)
   This approach is done by comparing the property to be evaluated with other similar properties whose selling value is already known.
2. Cost Approach (Cost Approach)
   SPI Edition VI 2015 explains in the cost approach, appraisers estimate the value by comparing the costs required to build a new property to replace the existing property (MAPPI, 2015).
3. Income Approach (Income Approach)

This approach is also called the investment approach, is one of the approaches that can be used in the evaluation of properties that product.

Facilities

Housing infrastructure includes roads, drinking water channels, rainwater channels, electricity networks, telephone networks and optical cables. Housing environment facilities include environmental equipment in the form of educational facilities, health, spending and business, government and public services, worship, recreation and culture, sports and open fields. Environmental means are (Sagala, 2014):

1. Facilities of worship
   The facilities of worship, type, type and size depend very much on local conditions.
2. Sports facilities and open spaces

Sports facilities and open spaces in addition to their main function as parks, children's playgrounds and sports fields will also provide freshness and neutralize air pollution as the city's lungs. Due to its very important function, these facilities must be properly maintained both in size and condition. In addition to parks and open sports fields, green lanes should still be provided.

General Facilities

Facilities are anything that is physical equipment provided by the service seller to support consumer comfort (Kotler, 2013). Facilities are ease, lightness, relaxation that can be done to do something or do a task (Zain, 2012). Facilities here include public facilities and social facilities, including infrastructure, educational, health, religious, and transportation facilities (Amin, 2015). The infrastructure that must be provided in the housing complex is as follows,

1. Roads, the classification of roads in the housing environment can be divided into several types, namely (Sastra and Marlina, 2006):
2. Clean / Drinking Water, a housing environment must provide a source of clean water for its residents, this source of clean water can be provided per unit or even centrally for the entire residential area.

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3. Wastewater, a good housing environment should have wastewater treatment facilities, because it functions as a residential area, some of the wastewater is domestic, which is treated enough to provide septic tanks and seepage wells.
4. Rainwater disposal, for the disposal of rainwater, seepage wells can be provided in open areas within the housing area or in the form of sewers that are managed together for the entire housing area.
5. Garbage disposal, garbage disposal facilities are the most important equipment related to environmental health requirements.

The electricity network, according to current needs, electricity is an important means of lighting. In housing, electricity supply should consider minimum standards.

Environment

A residential neighborhood is a group of houses with environmental facilities (Machfud, 2010). For most of the community, the environment has an important role in determining purchasing decisions. In addition, the busyness of modern society with work, of course to eliminate boredom and routine can only be realized in the housing environment, because home is a place to rest as well as spend time with the family (Widodo, 2012).

Design

The design of public facilities tends to be welcoming or that can attract people to be able to enjoy and be interested in wanting to use and come to the facility. Design elements that are attractive, fun, cheerful and not boring are very densely applied in the design for public facility properties. The amount of space needed should also be considered for the concept of the property that will be proposed. Is it able to accommodate the quantity according to the occupancy conditions of the complex where the object is planned. In this case, property design is one of the important things in this research that must be analyzed.

Conceptual Framework

Based on the explanation in the conceptual framework using the Highest and Best Use analysis or the highest and best use can be illustrated in Figure 3.1 as follows,

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Figure 1.1 Conceptual Framework

3. Research Methods

The type of research conducted is quantitative descriptive research where the data obtained from the research population sample is analyzed according to the statistical methods used and then interpreted. The location of this research was carried out on land in the Taman Setia Budi Indah 1 Complex with an area of -/+ = 36,000 m2, owned by Developer PT Ira Widaya Utama, which has not yet been utilized to the maximum, so research needs to be done to optimize the assets of the land. For the research time is from December 2021 to April 2022. Primary data is obtained through:

(1) Field survey of land condition and size data, land sale/purchase price comparison, rental price comparison
and similar property cost income in accordance with the proposed alternative.
(2) Questionnaire to developers regarding alternative property proposals.
(3) Questionnaire to the residents of the complex regarding alternative property proposals.
(4) Experts (architects) on property alternative proposals. (5) Government agencies.

Secondary data is obtained through: (1) RUTRK, RTRW and RDTR data. (2) Library data, books, magazines, journals, government publications, census data. (3) The research journal that is required in the preparation of the research is related to the factors that influence HBU, public facilities and property values in the housing complex. Data analysis on the alternatives selected in this research using the principles of Highest and Best Use, namely:

1. The analysis of alternative types is reviewed from a legal aspect
2. Analysis of alternative types viewed from a physical aspect
3. Analysis of alternative types is reviewed from the aspect of maximum productivity
4. Financially eligible use analysis (Capital Budgeting)

Capital Budgeting is the entire process of planning and decision-making regarding the release of funds where the return period of the funds exceeds one year (capital expenditure).

4. Result and Discussion

Alternative User Determination

Based on the Results of the Questionnaire of the respondents in the field, the most respondents chose, the location of some land can be added with new public facilities, but some of the land remains in accordance with the previous conditions, namely public facilities for sports (ball fields). And for the alternative of new facilities, most respondents chose strategically to be used as a convention hall as well as a food court instead of only being used as a convention or food court only. Based on this, the author draws a conclusion that will be the object of HBU's analysis:

1. Convention hall as well as food court
2. Convention hall

Analysis of Legal Aspects (Legal Permissibility)

Convention Building and Food Court

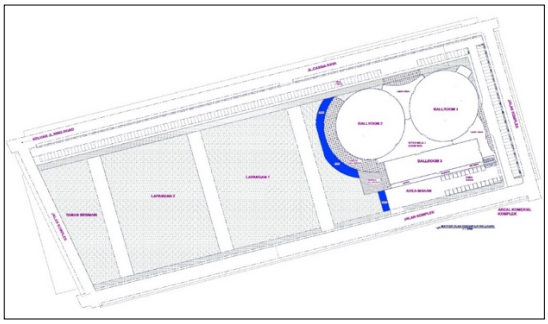

Figure 3.1 Master Plan Convention Hall & Food Court

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The property data will be analyzed to see if it is in accordance with the legal aspect, that is, in accordance with the applicable government regulations, where the land is included in the RTH-1 zone.

Table 3.1 Analysis of Legal Aspects Convention Hall & Food Court

Convention & Food Court	RTH Regulation	Conclusion
- Alas Hak : SHGB		Suitable
- GSB = 14m	GSB = 9,5m	Suitable
- KDB = 9,9 %	KDB = 10% Max	Suitable
- KLB = 0,16 (6.045 m2)	KLB = 0,20 (7.200 m2) Max	Suitable
- KDH = 90,1 %	KDH = 80%	Suitable
- Total Floor = 2 Floor	Maximal = 3 Lt	Suitable
- Hugh of Building = 12 m	Maximal = 13 m	Suitable
Parking Ratio :		
- Outdoor = 170 Vehicle	6.045m2 : 60m2 = 1011	Suitable
- User: Conv,F.Court	User = RTH Housing	Allowed
(for this, even though the allocation is RTH, it is still allowed to build a building according to the provisions of < 10% of the area)		

From the above analysis, all the points are in accordance with the allocation with the property to be planned. So from the analysis of the legal aspect of the building that will be planned in this case it can be allowed

Physical Aspect Analysis (Physical Possibility)

The location of the research object is in the city of Medan, namely at Komplek Taman Setia Budi Indah 1 Jl.Cassia Raya This complex consists of 2 districts, namely Selayang District and Tanjung Rejo District.

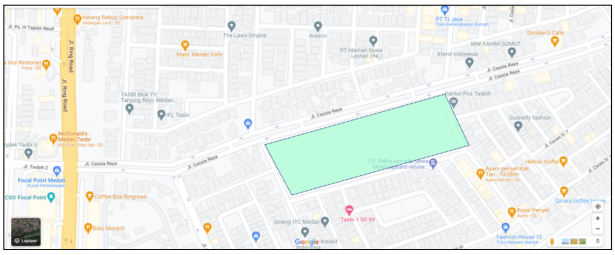

Figure 3.2 Location of Development Plan Convention Hall and Food court

The location is also supported by objects adjacent to one of the commercial areas of the complex. The condition of the research object land is as follows:

- North Region: Main Street Jl. Cassia Raya
- Southern Region: Complex Roads / Complex Commercial Areas
- Eastern Region : Road Complex / Housing
- Western Region: Road Complex / Housing

The shape of the land is rectangular with a width of about 118m and a length of about 340m, making building planning very easy and flexible. It is also supported by the density of mature land, the flat

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contour of the land and the elevation above the road, making this land very much meet the best and highest utilization criteria.

The land is in the Taman Setia Budi Indah 1 housing complex. Where in this complex, the general facilities related to utilities such as the availability of clean water, electricity and drainage are very adequate. Also networks related to communication such as telephone network, mobile, internet, cable TV, also optic cable are fully available.

Analysis of Financial Aspects (Financial Affordability
Convention Building

For the cost calculation, the author only calculates with the assumption that the land can be managed only, which is half of the land = 18,000 m2.

- For the period of completion of development: 1 Year.
- Estimated Investment: 5 Years
- Price / Cost Growth per year: 5% (Source: BPS Kota Medan)
- General Bank Interest Rate: 8 % (BI Source)

Financial Aspect Analysis Results

Each financial analysis of land development in the form of Convention or Convention & Food Court shows operational eligibility, so to determine the selected alternative (Highest and Best Use) is to look at each of the eligibility criteria, namely NPV, IRR and the largest PI, while Payback Period is the smallest. Here is a comparison of eligibility criteria from each alternative.

Table 3.3 Comparison of the Qualifications of Expansion Alternatives

No	Funancial Indicator	Property Use		
		Convention		*Convention & Food Court*
1.	Net Present Value (NPV)	316.084.890.556	>	313.086.629.049
2.	Internal Rate of Return (IRR)	28,83 %	>	28,23 %
3.	Profitability Index (PI)	2,31	>	2,26
4.	Payback Period (PP)	5,19 Year	<	5,20 Year

From the results of the research obtained in terms of Financial Aspects that are eligible for investment is the use of land as a Convention building. But before that, the two uses of the property will be further analyzed on the aspect of maximum productivity.

Analysis of Aspects of Maximum Productivity

If the alternative has a positive NPV value and is said to be eligible, then it is sought whether the value before and after the development of land/m2 is also maximal. And as a result of the development of the 2 building alternatives that were analyzed, it was found which building had the highest increase.

Table 3.4 Result Maximum Productivity

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Uraian	Alternatif	
	Convention	Convention & Food Court
Nilai Properti	316.084.890.556	313.086.629.049
Biaya Investasi	130.382.000.000	132.966.000.000
Biaya Tanah Awal	88.200.000.000	88.200.000.000
Nilai Bangunan	42.182.000.000	44.766.000.000
Nilai Lahan	273.902.890.556	268.320.629.049
Luas Lahan/ m2	18.000	18.000
Nilai Lahan/m2 Awal	4.900.000	4.900.000
Nilai Lahan/m2 Pengembangan	15.216.827	14.906.702
Penambahan Nilai Lahan/m2	10.316.827	10.006.702
Produktivitas	210,55%	204,22%

As a result of the calculation of maximum productivity, with the development of the Convention property, an increase in the value of the land will be obtained from the initial value of Rp. 10,316,827/m2 in the sense of land utilization for the Convention building will provide a land productivity of 210.55%.

Calculation of maximum productivity, with the development of Convention and Food Court properties, an increase in land value will be obtained from the initial value of Rp. 10,006,702/m2 in the sense of land utilization for the Convention building and Food Court will provide a land productivity of 204.22%.

In the maximum productivity analysis, the highest and best alternative use for the land in Taman Setia Budi Indah 1 housing in this research is the alternative use of the Convention building, with an increase in land value from the initial value of Rp. 10,316,827/m2 and gives a land productivity of 210.55%.

Discussion

The Highest and Best Use (HBU) analysis has four alternative types of analysis, namely the legal aspect, the physical aspect, the eligible financial aspect, and maximum productivity. The HBU analysis was performed on the assumption of land with an area of 18,000 m2. With the object of analysis HBU Convention Hall as well as Food Court and Convention Hall only.

The first stage is the selection of alternatives, where alternatives are analyzed covering the Convention Hall and the Convention Hall as well as the Food Court. In the legal aspect it is known that the allocation of research land is for residential development (Tarmizi et al., 2016 & Tarmizi et al., 2017). In the legal analysis, it is analyzed whether the legal aspect is in accordance with the applicable government regulations from the legal aspect of the building that will be planned both the Convention Hall and the Convention Hall as well as the Food Court in the legal aspect of the two types of property that will be planned can be accepted.

In the analysis of the physical aspect, the research land is located in a strategic area with rapid development, which is in Komplek Taman Setia Budi Indah 1 Jl.Cassia Raya.. This consists of 2 districts, namely Selayang District and Tanjung Rejo District. The land position is located in one of the main entrance lanes of the Complex from the direction of Jl. Ring Road. The street is a developing commercial area that is already filled with various commercial facilities such as Malls and Shopping Centers, Hotels, Gas Stations, Shop Complexes and Hospitals, so the location of the object is very marketable. In addition to this, the general facilities related to utilities such as the availability of clean water, electricity and drainage are very adequate. Also networks related to communication such as telephone network, mobile, internet, cable TV, also optic cable are fully available.

In testing the financial aspects, the alternatives that are said to be financially viable for the two properties are either the Convention Hall building alternative or the other Convention Hall building

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alternative as well as the Food Court with the Capital Budgeting method derived from financial projections in the management and development of the buildings (Ramadhan, 2022).

The last analysis is the maximum productivity analysis. On the analysis of the maximum productivity of land use at Convention, as well as Convention and Food Court. As a result of the calculation of maximum productivity, with the development of the Convention property, an increase in the value of the land will be obtained from the initial value of 10,316,827/m2 in the sense of land utilization for the Convention building will provide a land productivity of 210.55%, calculation of maximum productivity, with the development of Convention and Food Court properties, an increase in land value will be obtained from the initial value of Rp. Rp. 10,006,702/m2 in the sense of land utilization for the Convention building and Food Court will provide a land productivity of 204.22%.

In the maximum productivity analysis, the highest and best use alternative for the land in Taman Setia Budi Indah 1 housing is the alternative use of the Convention building, with an increase in land value from the initial value of Rp10,316,827/m2 and provides a land productivity of 210.55%.

5. Conclusion

This research aims to determine the highest and best property building in the Perumahan Taman Setia Budi Indah 1 Medan. From the results of the analysis of the legal aspect and the analysis of the physical aspect, there are 2 alternative properties, namely the first Convention and the second Convention & Food Court.

From the results of the Highest and Best Use analysis that has been done between the first alternative of the Convention and the second alternative of the Convention & Food Court, the first alternative of the Convention's land value is Rp10,316,827/m2 with the highest productivity of 210.55%, It can be concluded that the allocation of land for property development in the Taman Setia Budi Indah 1 residential complex area with the Convention building is the best alternative use for the Perumahan Taman Setia Budi Indah 1 Medan.

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