El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Selection of Best Investment Alternatives on Vacant Land In Tanjungsari Area, Surabaya Using Highest and Best Use Analysis

Ofel Alexander Simon[1], Ervina Ahyudanari[2*], Aditya Sutantio[3*]
Institut Teknologi Sepuluh Nopember
ofelsimons@gmail.com

ABSTRACT

Aims: This study was aimed to evaluates land-use alternatives using the Highest and Best Use (HBU) analysis, the Analytic Hierarchy Process (AHP), and utility theory as the basis for decision-making. Methodology and results: The findings indicate that Alternative 3, comprising a mixed-use composition of apartments (30%), offices (20%), hotels (15%), shophouses (15%), and SOHO units (20%), is the most suitable option. This alternative achieves a balance between the highest economic productivity (Rp 38,912,373.62/m^2) and Sustainability (score of 2.89). The sustainability assessment covers three main dimensions: environmental, reflected in the reduction of approximately 12.5% carbon emissions and the allocation of 10% of land area to green open space (RTH); social, shown through improved accessibility, local employment opportunities, and public comfort; and economic, demonstrated by the enhancement of property value and long-term financial feasibility. From the physical aspect, attention should be given to soil type and drainage conditions on the site. Regulatory risks, initially categorized as high, can be minimized to a low level through the fulfilment of technical documentation and intensive coordination with relevant agencies (DPM PTSP, DLH, Department of Transportation, and others). Sensitivity analysis further identifies occupancy rates as the key determinant of financial success. Conclusion, significance and impact study: From the results of this study, it can be concluded that the best alternative is alternative 3 due to its high sustainability value. Not only alternative 3, but alternative 5 can also be considered due to its high sustainability value.

keywords: Decision Making, Highest and Best Use Analysis, Analytical Hierarchy Process (AHP), Utility Theory, Maximum Productivity Analysis

INTRODUCTION

Urban sprawl brought on by Surabaya's expanding economy has resulted in unplanned urban planning, increasing pollution, noise pollution, and the conversion of water catchment sites into residential areas. These issues are made worse by rapid urbanization, which puts a great deal of strain on the environment and spatial planning when demand for residential land exceeds supply. For instance, West Surabaya is quickly becoming a posh residential neighborhood and commercial hub, while conservation areas like the Wonorejo Mangrove Forest are being turned into residential districts. According to figures from the municipal government, In 2025 the population of Surabaya is expected to rise from 2,970,952 in 2021 to 3,033,877 in 2025. West Surabaya, a posh residential and commercial area, is one of the cities growing because of this expansion. The Sukomanunggal/Segi Delapan neighborhood of West Surabaya

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

has land prices of IDR 15–20 million per square meter, according to AREBI statistics from 2022. In contrast, most land prices in the Darmo Satellite Town region fall between IDR 8 and 15 million/m2, with a few going as high as IDR 20 million/m². This discrepancy shows that land in Darmo Satellite Town, especially in Sukomanunggal/Segi Delapan, has a greater market value than comparable regions, which presents a great opportunity for mixed-use development and investment.

Therefore, to identify the best investment options, thorough study is needed. In order to offer suitable ideas for making efficient use of unoccupied land and promoting sustainable development, this research must take into account a number of factors, such as financial potential, legality, environmental sustainability, and the physical appropriateness of the property. Businesses may reduce risk when making investment decisions by using a planned and data-driven strategy. At the same time, they can assist the city of Surabaya in addressing the issues of urban sprawl and developing a more organized, inclusive, and ecologically friendly urban layout. In order to meet the problems of future urbanization, it is imperative that economic requirements and environmental sustainability be balanced.

Figure 1 *Research Location Map*

Figure 2 *Condition of Existing Land*
(Sources: Google Maps)

This research will be conducted on land owned by PT. Darmo Satelit Town (DST). This land covers an area of 69,754 m2 and is located in the Tanjungsari sub-district, Surabaya City as shown in Figure 1.1. The current condition of the land is swampy and overgrown with weeds, as shown in Figure 1.2. In fact, a lot of people are bothered by the land-dwelling pests like mosquitoes and tomcats. Due to improper use, the vacant land will become a maintenance burden for the proprietor. When the land is left vacant,

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

the landowner also forfeits several potential financial gains. Additionally, there will be more cars due to development in the vicinity of the site. If the landowner wishes to develop the property in the future, this will make it challenging for them to access the site.

Based on the results of an interview with one of the local government officials, the Octagonal area in Tanjungsari was previously owned by 3 (three) companies, namely PT. Darmo Permai, PT. Darmala, PT. Darmo Satelit. The area was previously planned to become a Central Business District (CBD), but the plan did not run as it should and currently some of the land has been built for housing and some land has been sold to other companies such as Elyon Christian School and Tierra SOH. This can occur due to financial uncertainty of investment, the physical condition of the existing land, and legal issues in the area. These problems can be analyzed using the Highest and Best Use (HBU) analysis. In addition, the results of the interview show that the area reviewed is included in the Zone Code K, namely Trade and Services Using Surabaya City Regional Regulation Number 8 of 2018 concerning Detailed Spatial Planning and Surabaya City Zoning Regulations 2018 - 2038. This has also been confirmed on the Detailed Spatial Planning Website.

The highest value and the most practical application are ascertained using the HBU analysis. This indicates that the most practical usage has the highest production, is financially viable, legally allowed, and physically doable. The notion of maximum productivity has evolved throughout time based on the purpose of the structure, but it still refers to producing the highest land value (Appraisal Institute, 2020). With the changing times, the younger generation's sensitivity to climate and environmental issues ranks second only to corruption. The findings of survey conducted in 2021 by Cerah Indonesia Foundation and Indikator Politik Indonesia show concern in environment. Concern over environmental harm was voiced by 52% of respondents. Just 4% expressed no anxiety at all, while the rest 30% expressed concern and 13% expressed mild concern. 4,020 respondents, ages 17 to 35, from all around Indonesia participated in the poll, which was carried out between September 9–16, 2021. These respondents represent almost 80 million voters in the 2024 elections. A basic random sample technique was employed in the survey (Afayat, 2021).

Additionally, studies have investigated the desire to buy green properties. Most respondents (83% of 417 respondents in Surabaya) comprehended the idea of green buildings, according to the data. If a green building idea was included, 38.5% of respondents were prepared to spend an extra 5%, and 39.7% were willing to pay an additional 6%–15%. Environmental awareness, land characteristics, indoor air quality, and green features are some of the factors that affect this willingness to pay. Another aspect is risk aversion. Properties with less long-term hazards are often preferred by investors and consumers (Njo et al., 2021).

Furthermore, corporations are under pressure to intensify their efforts and concentrate on non-financial aspects of their operations due to increased investor

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

interest and worldwide awareness of environmental concerns and other non-financial considerations like good governance and corporate social responsibility. Businesses assess their performance on these risks in three general categories: economic, social, and environmental. But from the standpoint of the business, acting entails investment. Whether the investment and necessary resources make financial sense is a crucial point that frequently comes up (Pagourtzi et al., 2003)

In Highest and Best Use analysis, several factors can influence the value of the property, one of which is property value. As in previous research, maximum productivity is assessed based on Residual Value, which is the difference between the value before and after land use. To measure building value, researchers use the Cost Approach, which estimates the cost required to build the property, accounting for depreciation and construction costs, and the Market Data Approach, which uses data from the property market to determine the building's value (Khodabakhshian & Toosi, 2021).

Depending on the use of the structure, other factors than property value may also have an impact on optimum productivity. When it comes to historic structures, social and cultural factors must be considered in addition to financial considerations to guarantee upkeep expenses. The Analytic Hierarchy Process (AHP) may be used to process these three factors. Determining the maximal HBU production can be aided by the AHP approach. Researchers can use AHP to choose the best point based on a variety of evaluation factors. The optimal option is often the one that achieves the most balanced compromise, considering all criteria chosen for comparison, rather than the one that maximizes each criterion separately because certain criteria may clash with one another (Kilis et al., 2025).

Other studies using Highest and Best Use analysis with property value as the aspect of maximum productivity were conducted by Utomo et al., (2023), and Sakti et al., (2020). Meanwhile, studies using aspects other than property value were conducted by Walacik et al., (2020) and Yuwono et al., (2023). Therefore, based on previous research, no comprehensive discussion has been conducted on investment selection for housing, apartments, office buildings, hotels, retail, or other commercial properties in Surabaya using Highest, Best, and Best Use analysis while maintaining sustainability aspects.

Based on the identified issue, the study's goals are to use the Highest and Best Use (HBU) Analysis to identify the best investment that yields the highest land productivity in the research area and the AHP approach to guarantee the integration of sustainability principles that cover economic, social, and environmental aspects. This study is urgently needed as a reference for future research on investment options and land use. It is also intended that this study will help guide PT. Darmo Satelit Town's investment decisions and provide a foundation for research on other properties with comparable circumstances.

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

RESEARCH METHODOLOGY

This research is based on several key concepts, namely the Highest and Best Use (HBU) Analysis to identify the most optimal land use based on physical, legal, and financial feasibility aspects. Physical Feasibility Analysis assesses location, accessibility, and infrastructure, while Legal Feasibility Analysis ensures land compliance with spatial planning regulations, and Financial Feasibility Analysis evaluates investment costs and the rate of return on capital. Data collection was conducted through interviews and observations. Researchers also used secondary data in the form of laws and regulations, previous research, books and magazines. The data analysis techniques used in this study were analysing physical feasibility, legal feasibility, financial feasibility, and the analytical hierarchy process.

RESULTS AND DISCUSSION

Market Analysis

An interview with the Operations Director of PT. DST, Dra. Maria Christine H., revealed that the company still has internal plans for the development of the land being studied. PT. DST believes the land still has potential for development within the next five years. However, the main obstacles faced are high development costs and the relatively low current property market conditions. Regarding its land use vision, PT. DST stated its desire to develop the area with a mix of 80% residential and 20% shophouses. This approach aims to optimize land use while still providing commercial space to support the needs of area residents.

To obtain a picture of the actual market conditions surrounding the study site, an interview was conducted with Galaxy Mayjend, a property services and consulting company that understands the dynamics of demand and absorption of various property types in West Surabaya. This interview aimed to identify the level of demand and market absorption for various functions, such as landed houses, apartments, shophouses, offices, and SOHOs, and to obtain input on the most ideal property functions for development on the study site. The interview results are shown in the table below.

Table 1. *Interview Results with Managing Director Galaxy Major General*

Function	***Potential Demand***	***Absorption Capacity***	***Detail Information***	***Allowed/Not Allowed***
Landed House	*Medium*	*Medium*	*In demand if the price is Rp. 1–5 M; above that it tends to drop*	*Allowed*
Residential Building	*Medium*	*Medium*	*The absorption rate is determined based on the population density of the area.*	*Allowed*

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam
Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Office	*Low*	*Medium*	*High service charges are the main obstacle*	*Allowed*
SOHO	*Medium*	*Medium*	*The absorption rate is determined based on the population density of the area.*	*Allowed*
Apartment	*Medium (if price <500 million) / Low (if expensive)*	*Medium – Low*	*Quickly absorbed if the price is in the range of IDR 300–500 million*	*Allowed*
Warehouse	*High*	*High*	*The function is most quickly absorbed according to experience in the area*	*Not Allowed*

From the results of the table above, it can be seen that warehousing is one of the properties that does not obtain permits.

Physical Feasibility Analysis

The plot of land indicated by the yellow line belongs to PT. Darmo Satelit Town (DST), located in Tanjungsari Village, Sukomanunggal District, Surabaya City. This plot of land has an irregular shape, but is generally consolidated into a single area. The site's shape tends to widen toward the northwest and narrow in the center, which may limit the flexibility of block division but still allows for the development of a multifunctional area. Direct access is available from the north and west via a two-lane main road, supporting connectivity and potential visibility for commercial functions.

Table 2 *Permitted Building Intensity and Layout*

Component	***Allocation***				
	Apartment	***SOHO***	***Ruko***	***Kantor***	***Hotel***
Maximum KDB	*50%*	*100%*	*100%*	*50%*	*50%*
Maximum KLB	*12 points*	*5 points*	*5 points*	*9 points*	*9 points*
Maximum KTB	*70%*	*65%*	*65%*	*70%*	*65%*
Minimum KDH	*10%*	*0%*	*0%*	*10%*	*10%*
Maximum Building Height	*200 meters*	*25 meters*	*25 meters*	*200 meters*	*200 meters*
Number of Basement Floors	*3rd floors*	*1st floors*	*1st floors*	*3rd floors*	*3rd floors*

Space intensity limits include the Basic Building Coefficient (KDB), Building Floor Coefficient (KLB), Building Footprint Coefficient (KTB), and Basic Green Coefficient

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam
Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

(KDH), as well as the permitted building height and number of basement floors. Each type of designation has a different intensity value, depending on the building's primary function.

Table 3 *Identifying Causes and Mitigating Risks*

No.	*Regulatory Risk*	*Reason*	*Mitigation*
1	*Technical document discrepancy*	*Documents prepared without field surveys or coordination*	*Use technical consultants and field surveys*
2	*Application does not comply with zoning*	*Not checking the RDTR before submitting a plan*	*Submit KRK and consult with DPM PTSP*
3	*Lack of socialization to the community*	*Developers did not involve residents from the start*	*Conduct outreach since pre-construction*
4	*Limited field supervision*	*The number of field supervisors is limited*	*Report progress and open monitoring access*
5	*Change of building function without permit revision*	*Developer changes building function without reporting*	*Submit permit revision before change of function*
6	*Construction without complete permits (PBG/SLF)*	*Construction begins before permits are issued*	*Delay construction until all permits are complete*
7	*Slow fulfillment of technical recommendations*	*Technical documents such as Andalalin take a long time*	*Use an experienced consultant and start early*
8	*Environmental documents revoked due to violations*	*Project implementation does not comply with UKL-UPL/AMDAL documents*	*Conduct internal audits and comply with the contents of environmental documents.*

Sustainability Analysis Approach

The aspects analyzed are divided into environmental, social, and economic aspects. The environmental aspect assesses the extent to which land development alternatives impact the area's ecological quality and environmental functions. Three sub-criteria are analyzed: carbon emissions, which contribute to CO_2 emissions from building and vehicle activities. Green open spaces, which serve as ecological and recreational areas, are also considered. Furthermore, changes in groundwater absorption and the potential for inundation or flooding are also considered.

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam
Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

From a social perspective, contributions lead to local community well-being and social integration. In this regard, the potential for employment from local residents is part of the opportunity to create jobs. Ease of community accessibility to the project site supports community well-being. Negative impacts, such as the emergence of conflict and disruption during the construction process, are not limited to positive impacts. From an economic perspective, there is potential for the growth of informal sector businesses and local MSMEs to support the economy. Changes in land and building prices around the project area will increase property values, triggering investment interest as a domino effect.

Table 4 *Calculation of Sustainability Impact Value for each alternative*

Function	***Alternative 1 (%)***	***Alternative 3 (%)***	***Alternative 5 (%)***
Impact on Drainage			
Apartment	*5.00*	*3.00*	*1.50*
Office	*1.80*	*1.80*	*2.25*
Hotel	*-*	*1.20*	*1.20*
Residential Building	*1.05*	*1.05*	*1.05*
SOHO	*1.05*	*1.40*	*2.10*
Total	*8.90*	*8.45*	*8.10*
Employment			
Apartment	*3.00*	*1.80*	*0.90*
Office	*2.00*	*2.00*	*2.50*
Hotel	*-*	*1.35*	*1.35*
Residential Building	*1.20*	*1.20*	*1.20*
SOHO	*1.05*	*1.40*	*2.10*
Total	*7.25*	*7.75*	*8.05*
Access to Transportation and Infrastructure			
Apartment	*3.50*	*2.10*	*1.05*
Office	*2.00*	*2.00*	*2.50*
Hotel	*-*	*1.35*	*1.35*
Residential Building	*0.90*	*0.90*	*0.90*
SOHO	*1.05*	*1.40*	*2.10*
Total	*7.45*	*7.75*	*7.90*
Social Impact on Citizens			
Apartment	*2.00*	*1.20*	*0.60*
Office	*1.20*	*1.20*	*1.50*
Hotel	*-*	*0.75*	*0.75*

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Residential Building	*1.20*	*1.20*	*1.20*
SOHO	*1.05*	*1.40*	*2.10*
Total	*5.45*	*5.75*	*6.15*
Local Economy			
Apartment	*3.00*	*1.80*	*0.90*
Office	*1.60*	*1.60*	*2.00*
Hotel	*-*	*1.05*	*1.05*
Residential Building	*1.50*	*1.50*	*1.50*
SOHO	*1.35*	*1.80*	*2.70*
Total	*7.45*	*7.75*	*8.15*
Property Value Increase			
Apartment	*2.00*	*1.20*	*0.60*
Office	*0.40*	*0.40*	*0.50*
Hotel	*-*	*0.30*	*0.30*
Residential Building	*0.45*	*0.45*	*0.45*
SOHO	*0.45*	*0.60*	*0.90*
Total	*3.30*	*2.95*	*2.75*
New Investment			
Apartment	*3.50*	*2.10*	*1.05*
Office	*2.00*	*2.00*	*2.50*
Hotel	*-*	*1.35*	*1.35*
Residential Building	*1.20*	*1.20*	*1.20*
SOHO	*0.90*	*1.20*	*1.80*
Total	*7.60*	*7.85*	*7.90*

To determine the environmental impact value for each alternative, calculations are carried out by multiplying the value of each impact from the interview results by the functional composition of each alternative that can be seen from table 4.

Financial Feasibility Analysis

This study employed the Analytical Hierarchy Process (AHP) approach to quantitatively assess the most sustainable land development options by allocating weights to each sustainability sub-criterion. Formalizing stakeholder views and preferences for the nine pre-defined sub-criteria for use in a multi-criteria decision-making process was the main goal of using AHP.

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Table 5. *Estimation of NPV and IRR for Each Alternative*

Function	***NPV***	***IRR***
Alternative 1		
Apartment	*691,105,533,029.30*	*37%*
Office	*244,377,841,347.56*	*29%*
Hotel	*-*	*-*
Residential Building	*68,045,927,360.83*	*56%*
SOHO	*72,337,710,747.46*	*55%*
Alternative 3		
Apartment	*424,614,531,003.92*	*36%*
Office	*244,377,841,347.56*	*29%*
Hotel	*431,542,068,708.28*	*30%*
Residential Building	*68,045,927,360.83*	*56%*
SOHO	*96,474,494,140.17*	*55%*
Alternative 5		
Apartment	*283,388,256,730.00*	*38%*
Office	*305,420,675,055.93*	*29%*
Hotel	*245,944,623,354.96*	*29%*
Residential Building	*68,045,927,360.83*	*56%*
SOHO	*144,699,634,638.47*	*55%*

The table above shows the estimated calculations for each alternative using the NPV and IRR formulas. In this calculation, the evaluation was conducted on five property sectors.

Table 6 *Estimated Total NPV and IRR for Each Alternative*

Alternative	***NPV***	***IRR***
Alternative 1	*IDR 1,078,618,348,074.780*	*36.03%*
Alternative 3	*IDR 1,281,227,343,068.230*	*34.51%*
Alternative 5	*IDR 1,059,766,782,851.740*	*35.17%*

The data above is the total NPV and IRR calculation for alternative 1, alternative 3 and alternative 5.

Hierarchy Analysis

This study employed the Analytical Hierarchy Process (AHP) approach to quantitatively assess the most sustainable land development options by allocating weights to each sustainability sub-criterion. Formalizing stakeholder views and preferences for the nine pre-defined sub-criteria for use in a multi-criteria decision-making process was the main goal of using AHP.

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

At the lower levels, AHP separates objectives, important factors, and evaluation indicators, enabling a hierarchical decision framework. The Saaty basic scale (scale 1–9) is used to compare components at the same level pairwise as part of the evaluation process. After processing the evaluation findings, relative weights (eigenvectors) are produced, and the Consistency Ratio (CR), which has a tolerance limit of 0.1, is used to verify for consistency. If the CR value exceeds this threshold, the weighting results are considered methodologically invalid.

In this study, the weights for the three main aspects (environmental, social, and economic) were set at equal amounts (33.33%) based on interviews with government stakeholders. Therefore, the AHP weighting focuses on the sub-criteria level, namely the nine sustainability indicators that will be used to assess each land development alternative. Weighting is performed by integrating stakeholder questionnaire results through AHP processing software (e.g., Super Decisions), as a basis for quantitative analysis in the next stage.

Table 7 *Sustainability Analysis Results for Each Alternative*

Sub criteria	***Alternative 1***	***Alternative 3***	***Alternative 5***
Carbon Emissions	*0.262*	*0.235*	*0.199*
Green Open Space (RTH)	*0.229*	*0.229*	*0.233*
Water and Drainage	*0.109*	*0.153*	*0.188*
Local Jobs	*0.638*	*0.682*	*0.708*
Transportation & Infrastructure Access	*0.173*	*0.180*	*0.184*
Social Impact on Citizens	*0.302*	*0.319*	*0.341*
Local Economy	*0.146*	*0.151*	*0.159*
Property Value Increase	*0.148*	*0.132*	*0.123*
New Investment	*0.778*	*0.804*	*0.809*
Total	***2.784***	***2.885***	***2.943***

Based on the results of the Sustainability evaluation, Alternative 5 obtained the highest total score (2,943), followed by Alternative 3 (2,885) and Alternative 1 (2,784). However, determining the best alternative does not always have to be based on the total score, but can consider the priority of certain sub-criteria according to the needs and perspectives of stakeholders. For example, in some development contexts, reducing carbon emissions may be the main focus compared to other sub-criteria, or in the case of this land, water and drainage aspects are of particular concern to government stakeholders given the potential risk of flooding in the area. However, in this study, the selection of the best alternative is assumed to use the overall total score as the main reference, so Alternative 5 is considered the most optimal choice.

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Table 8 *Interpretation of Sustainability of Each Alternative*

Sub Criteria	***Interpretation***
Carbon Emissions	*Although there is still opportunity for improvement through the use of environmentally friendly materials and energy-saving technologies, the value falls into the medium range, suggesting a rather good contribution to lowering emissions.*
Green Open Space (RTH)	*The proportion of green open space satisfies basic requirements but is not yet at its ideal level. In this case, it is indicated as moderate and comparatively equal ratings among alternatives. For improved ecological function, the amount and quality of vegetation must be enhanced.*
Water and Drainage	*Positive advantages are still negligible, as indicated by the sub-criteria with the lowest score overall. Enhancing drainage systems and precipitation management is necessary to mitigate potential adverse effects, such as floods and inundation.*
Local Jobs	*Excellent ratings for every option, suggesting a major support for the socioeconomic elements of the area and a boost to local employment.*
Transportation & Infrastructure Access	*A medium-low ranking means that public transportation integration and accompanying infrastructure upgrades are still necessary to increase accessibility and connection.*
Social Impact on Citizens	*A reasonably high score denotes tangible advantages for the neighborhood, including more business and a more pleasant atmosphere.*
Local Economy	*The relatively low value indicates that the contribution to the local economy still needs to be increased through collaboration with MSMEs and local suppliers.*
Property Value Increase	*A low score indicates that the impact on the appreciation of surrounding property values is not yet significant, possibly influenced by market perception or inadequate supporting infrastructure.*
New Investment	*High scores across all alternatives, reflecting the great potential in attracting new capital to the region and driving regional economic growth.*

Maximum productivity analysis is conducted by adding the sustainability value to the financial results in the form of land value per m2 to assess the efficiency of sustainable achievements on economic outcomes. Based on the results of interviews with several stakeholders (owners and the government), the ratio for land value was 0.7 and

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

the sustainability value was 0.3. The maximum productivity value is a strategic indicator to balance profit orientation and sustainability in selecting the direction of project development.

Table 9 *Maximum Productivity Estimates for Each Alternative*

Alternative	***Land Value /m2***	***Sustainability Value***	***Maximum Productivity***
Alternative 1	*26,426,061.70*	*2.78*	*176%*
Alternative 3	*38,912,373.62*	*2.89*	*199%*
Alternative 5	*33,418,049.85*	*2.94*	*190%*

The table above indicates a non-linear relationship between sustainability scores and maximum productivity. Although Alternative 5 has the highest sustainability score, it is not the most economically productive. Conversely, Alternative 3 demonstrates that maximum economic productivity can be achieved without significantly sacrificing sustainability, even if its sustainability score is not the highest. This suggests that decision-making need not always focus on a single aspect but can consider a combination of economic efficiency and sustainability. In this context, Alternative 3 can be viewed as the most aggressive option for maximizing land value, while Alternative 5 offers a more moderate and balanced approach between profitability and environmental responsibility. Alternative 1, while relatively good in terms of sustainability, shows limitations in its productivity drive, making it less competitive as a strategic option.

Discussion

Based on this perspective, property valuation can be divided into two categories: market valuation, which assigns a fixed value to a property based on the prices of other properties in the vicinity, and investment valuation, where the appraiser assigns a value based on how valuable the property is to a particular person or investor (Baum et al., 2021). Each price formed reflects the actual amount exchanged in market transactions. In property sales, the estimated sales value must be calculated to assess the intrinsic value of each individual. In this study, a market approach was used to analyze property sales, applying a comparison of current data measured by the similarity of comparable data for the properties being analyzed (Agung & Putra, 2023). The market approach is used to balance prices, thus providing a better indication of value for the property sector.

In this study, sustainability is analyzed through three aspects: social, economic, and environmental. These three aspects impact sustainability, according to the World Commission on Environment and Development (WCED). Social aspects include the project's contribution to the welfare of the local community and healthy social

El-Mãl | Jurnal Kajian Ekonomi & Bisnis Islam

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

integration. In the context of real estate, when property investment development occurs, a phenomenon called gentrification can arise. Economic aspects impact economic growth and provide significant opportunities for the economy. Real estate experiences appreciation and increases in property values when demand is high, leading to further investment (Wilhelmsson et al., 2022). Finally, environmental aspects emphasize the protection of natural resources and efforts to address climate change. Property development naturally releases CO2 emissions into the air. If CO2 emissions are uncontrolled, this is certainly not in line with the environmental objectives of the SDGs. Therefore, carbon emission measurement is necessary before the construction is done (Supriatna, 2021).

The results of this study align with previous research that also applied AHP to the concept of sustainability. Saputro et al., (2023) found that economic criteria had the highest weighting (0.591), followed by environmental (0.285), and social (0.124) in the selection of sustainable suppliers. Saputro et al., (2023) assessed the sustainability of tofu MSMEs by prioritizing market position, competitiveness, system optimization, and social responsibility. While proven effective, AHP has limitations, such as the subjectivity of respondent assessments and the specific research context, requiring adjustments when applied to different sectors or regions. This study demonstrates that appropriate technique application is essential for convincing alternatives.

CONCLUSION

Based on a comprehensive analysis of three alternative land development investments in the Tanjungsari area, Surabaya, considering aspects of legality, sustainability, economic value, market, as well as regulatory and financial risks, the following conclusions were (1) With the greatest land value of Rp 38,912,373.62/m^2 and a Sustainability score of 2.89, Alternative 3 is the best option. In the framework of Surabaya's spatial planning, the combination of these two choices shows that Alternative 3 is not only financially viable but also complies with sustainable development principles. (2) Considering sustainability alone, Alternative 5 is the best alternative, with the highest Sustainability score of 2.94. This alternative demonstrates the highest contribution to environmental, social, and governance aspects. (3) According to market research, residential building and SOHOs have the greatest expansion potential because of their adaptability and fit with Segi Delapan neighborhood's nature, which is currently dominated by large corporations. The greatest concern is the imbalance between price and affordability, which can be reduced by multifunctional projects. Competition in the neighborhood is still low. (4) In land development, regulatory risk are typically caused by zoning breaches, a lack of cooperation amongst parties, and discrepancies between technical documentation and field circumstances. According to interviews conducted with the Surabaya DPM PTSP (Hospital-Free Space) Office, there are eight main risks that could impede the permitting process: incomplete permits, revocation of environmental documents because of field

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

violations, and delays in implementing technical recommendations. Permit rejection, project discontinuation, or administrative penalty may result from the risks happened. Thus, to preserve regulatory compliance and guarantee a smooth project implementation, document preparation, community engagement, and the employment of technical consultants are essential mitigation techniques. (5) The large initial investment burden, especially the land cost component, is the main source of financial risk. This cost can be distributed proportionately in high-rise structures, but it has a major effect on the overall investment cost in low-rise buildings. Additionally, the market's capacity to absorb units may be impacted by changes in external variables, such as interest rate swings, which have a significant influence on unit rental or selling costs, especially during recessions. The cash flow feasibility of a project is also significantly influenced by occupancy rates. Thus, the project's financial viability may be hampered by a cash deficit if market performance is below expectations. (6) Last but not least, the occupancy sensitivity analysis indicates that almost all development functions are highly influenced by changes in occupancy rates, especially within the first five years. For apartments and offices, an occupancy rate of 85% enables a payback period of just two years. However, if occupancy drops to 55%, the payback extends to five years, and at 44%, it lengthens further to nine years. Hotels demonstrate similar vulnerability, where a decline in annual rental rates from 65% to 58% nearly doubles the payback period from 3.7 years to 7.56 years. In contrast, shophouses and SOHOs are relatively more resistant to occupancy variations, though they also become less viable if rates fall below 50%. Referring to expert benchmarks that place the ideal IRR for real estate investment between 30–40%, the fourth scenario emerges as the most feasible, as it delivers IRR outcomes that remain within a reasonable range and align with moderate market expectations.

ACKNOWLEDGEMENT

The authors express gratitude to the individuals who have provided data assistance and guided researchers to be able to develop research that is useful for readers. The researchers also express their gratitude to the journal which has helped to perfect the results of this research.

REFERENCES

Afayat. (2021). Survei: 52 Persen Generasi Muda Peka Isu Lingkungan dan Krisis Iklim. In Greeners.Co.

Agung, G., & Putra, A. (2023). Penilaian Real Properti Berupa Tanah Kosong di Kota Denpasar Provinsi Bali. Jurnal Teknik Sipil Cendekia, 4(2), 617–627.

Appraisal Institute. (2020). The Appraisal of Real Estate Fifteenth Edition.

Baum, A. E., Crosby, N., & Devaney, S. (2021). Property Investment Appraisal (Fourth). John Wiley & Sons Ltd Publications.

Khodabakhshian, A., & Toosi, H. (2021). Residential Real Estate Valuation Framework

Vol 7 No 1 (2026) 595 - 610 P-ISSN 2620-295 E-ISSN 2747-0490
DOI: 1047467/elmal.v7i1.10923

Based on Life Cycle Cost by Building Information Modeling. Journal of Architectural Engineering, 27(3). https://doi.org/10.1061/(ASCE)AE.1943-5568.0000479

Kilis, V., Ploskas, N., & Panaras, G. (2025). Investigation of multi-objective decision making approaches for the optimization in building envelope thermal design. Sustainable Energy Technologies and Assessments, 82, 104506. https://doi.org/10.1016/j.seta.2025.104506

Njo, A., Valentina, G., & Basana, S. R. (2021). Willingness to Pay for Green Apartments in Surabaya, Indonesia. Journal of Sustainable Real Estate, 13(1), 48–63. https://doi.org/10.1080/19498276.2022.2036427

Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T., & French, N. (2003). Real estate appraisal: a review of valuation methods. Journal of Property Investment & Finance, 21(4), 383–401. https://doi.org/10.1108/14635780310483656

Sakti, A., Sinulingga, S., & Tamiami, H. (2020). The Highest and Best Use Analysis in PT Cukat Trengginas Arians Land (Case Study: Vacant Land on Flamboyan Street Medan). International Journal of Research and Review, 7(2), 41.

Saputro, A. A., Agusti, F., & Waluyono, G. F. (2023). Penilaian Keberlanjutan Umkm Dengan Metode AHP. Journal Science Innovation and Technology (SINTECH), 4(1), 1–5.

Saputro, T. E., Khusna, Z. H. A. M., & Dewi, S. K. (2023). Sustainable Supplier Selection and Order allocation using Integrating AHP-TOPSIS and Goal Programming. Jurnal Teknik Industri, 24(2), 141–156. https://doi.org/10.22219/JTIUMM.Vol24.No2.141-156

Supriatna, J. (2021). Pengelolaan lingkungan berkelanjutan. Yayasan Pustaka Obor Indonesia.

Utomo, C., Astarini, S. D., & Robi., R. (2023). Measuring Land Productivity for Stakeholder Decision to Get the Best Use in Property Development. International Conference on Architecture and Civil Engineering Conference.

Walacik, M., Renigier-Biłozor, M., Chmielewska, A., & Janowski, A. (2020). Property sustainable value versus highest and best use analyzes. Sustainable Development, 28(6), 1755–1772. https://doi.org/10.1002/sd.2122

Wilhelmsson, M., Ismail, M., & Warsame, A. (2022). Gentrification effects on housing prices in neighbouring areas. International Journal of Housing Markets and Analysis, 15(4), 910–929. https://doi.org/10.1108/IJHMA-04-2021-0049

Yuwono, A. P. D., Khairunnisa, A. A., Ikasanti, M. N., Adilah, N. H., & Widiyani, W. (2023). Pendekatan Highest and Best Use dalam Pelestarian Bangunan Bersejarah. ARSITEKTURA, 21(2), 247. https://doi.org/10.20961/arst.v21i2.77861