

Site Selection Factors of Apartment on Developer Perspective

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Abstract—The demand of residence availability in Surabaya increases due to continuous escalation of population and economic growth. However, because of limited site in Surabaya, government has opened large opportunities for apartment developments. It triggers the developers build apartment in many location. While, the distribution of apartment establishment needs to be concerned in order to avoid accumulation in certain site that can generate more environment problems. As a base of city planning and real estate development, site selection needs to be known by the developers who play a major role in apartment development in Surabaya. This research is aim to find the answer what are the most important factors for developers in decision making regarding to apartment site selection. To reach the goal, this research is using descriptive statistical analysis. Then, the result of this research, there are nine variables that important to be considered in apartment site selection by developer perspective, such as landownership, zoning, strategic and planning corporation, supply and demand, public utilities, land price, document planning, township, and corporate ability.

Keywords—Apartment; Developer; Location; Site Selection

I. INTRODUCTION

Trades and industries are leading sector in Surabaya economic growth. Almost 50% of economic growth influenced by trading sector and 23% influenced by industry sector. It will require the availability of housing to live or settle for local resident or immigrants who work in the city. Housing is a primary need of human, not only seen as a means of living, but the process of living human beings in order to create a way of life. Moreover, availability of housing is also influenced by the increasing population which has reached 3,125,576 people. To accommodate those numbers it takes about 694.572 housing units (with the assumption 1 house = 1 family = 4.5 inhabitants). Based on Surabaya document planning in 2013, because of limited land in Surabaya, it is only accommodate about 544,304 housing units. Besides due to population growth Surabaya rapid and the urban activities are varied, its land became saturation and the changing of built-up area such as residential, commercial and industrial land uses [1]. It may cause the city growing began to move away from the city center to suburb. Limited land in the middle of an urban area is also because of highly price increasing and competition [2].

To overcome the limited amount of land, the government comply the availability of housing through the vertical housing like apartment. In Surabaya, apartment is one of alternative to control and streamline the space. Then one of the best solutions to overcome limited land and high land price problems is perform to build terraced houses or apartment [3]. Although Surabaya has been no specific regulation of land designated apartment, government support apartment development. Besides that, consumer behavior can effect apartment development. The economic growth is pretty good to increase number of middle-upper class society, so it is possible to influence the need of good housing for them. Apartment is not only for businessmen or entrepreneurs to live but also nowadays living in apartment is trend of today's lifestyle which is central to modern society in cities [4]. Then, living in an apartment is also an option for students (younger age groups), young families and older families. Based on Colliers Research Report Apartment 2014, the rate of absorption of apartment units reached 82.8%, this is evident in recent years, especially in middle class apartment, and the number of potential demand will continue growing in line with population growth increasing to 1.2% annually. Easiness payment and terms purchasing apartments is also a major factor that causes increased absorption level apartment (take-up rates). It causing developers have a high interest to build apartment in Surabaya. Supply apartment units has now reached 18.153 units, up to 10,8% from previous year [5].

In the end, those phenomenon has encouraged apartment developed grow randomly. Apartments are not only growing in downtown of Surabaya, but also growing and spread in suburb. Whereas, location where is apartment developed is very important in order to avoid a buildup areas which could effect in unfair price competition, failure in apartment sale, social and environmental problems. Location in land development activity shall be considered and chosen appropriately, so it could be encourage urban activity more productive and efficiently [6].

To avoid the conflicts between activities as an effect of apartment development, it necessary to allocation those activities according to its space characteristics and capacity in long term [7]. In urban planning, land use allocation closely related to determine a location, and create the form of land use apartment. The success and value of a housing project is determined by the location [8]. The accuracy of apartment site selection will affect successful sales, which it may could affect the economic growth [9]. In these case, it necessary to have a

good site selection plan for developing an apartment. Because of so many participants in developing apartment such as developer, government, contractor and etc., it could be different perspective between them. This research wanted to know the apartment site selection factors in developer perspective. This research is aim to know what are the most important factors for developers in decision making regarding to apartment site selection.

II. LITERATURE REVIEW

A. Definition and Terminology

Developers are actors who transform raw land for property improvement by using the efforts of labor, capital, and entrepreneur [10]. Developers are parties to prepare raw land for development by increasing road networks, utilities and so on. Developers are also builders (who actually build improvements on real estate). Developer varied in their level of expertise brought into the development team. Developer's background can be a builder, agents, an engineer, etc. They also differ in the extent to which involved in the actual process in development. Some are responsible for the total management of each project's stage from start to finish, while others are content to delegate some of the responsibility for the project manager, in order to maintain a more strategic policy role [11]. However, the developer is an entrepreneur - someone who can identify the need for product specific properties and are willing to take the risk to make a profit [12].

While, in Indonesian Dictionary, factor is the (state, event) that contribute to (affect) the occurrence of something. While the selection is a process, method, deeds choose. The location is a species or community life, including all the environmental factors. In the context of geography, the topography of the location is the situation in a circular or oval valley surrounded by steep hills. Location is a context of commercial building, an area where several commercial companies have been established [13].

Then, apartment is one room or more, usually a part of a residential structure that is designed to be occupied more than one family, which normally functions as rental housing and have never owned by the occupants, but managed by the owner or manager of the property [10].

B. Urban Planning and Real Estate Development

Site selection is one of the decision-making processes in successful investment property. Developers are businesses which play a major role in business or real estate or property developments, which has the ultimate goal of establishing welfare of the company, maintaining the financial strength of the company and create property assets that have the potential and have a long life profitable both financially and reputation of company [14]. To achieve those objectives, the developer should be able to see possibility of highest return when it has been successfully executed, so it can cover all fees that have been used for the construction and earn residual (profit) in sales [11]. To achieve a return which developer expected, it is require investment strategies. Investment is like a sacrifice that is expected to bring benefits in the long term. To achieve the success of these investments, developer will require a strategic planning. Company strategic planning is a long-term planning that firm or organizational will be doing. Then, successful investment require organization cultural for making

decision, policy, strategies and programs determination to ensure that the strategy and policy has been implemented so that the creation of a successful investment.

The successful investment in property is determined by where the property will be developed. So if developers want to achieve returns, developers need to consider a long-term planning, policy-strategies and corporate culture. Therefore, in this research, factors could affect developer's site selection of apartment are company's long-term planning and corporate cultural. Site selection of the property also is one of the steps that must be done when the developer did a market study. The location is important to be recognized and considered in the development of real estate. The location indicates where developers use either a property or lease land to build properties. But before developers buy or rent some land, developers must seeing land condition [15].

Besides, in site selection of property, zoning is an important factor [11]. This factor is measured by looking at legality of land use, restrictions on the density, land layout, and others possibility land function. Land control and management is form into tax, so in site selection, developer need to tax mapping for each land which to be purchased or rented. Furthermore, the site selection is certainly influenced by the regional development plan that has been designated by the government. The plan will certainly increase the property value of the land at its location [16].

In site selection of property development, physical factors are also worth to be considered, especially land property development that may have more complex building specifications such as high-rise buildings. Physical factors are consists of land size, land slope, flooded area, and groundwater resources availability [11] [16]. Build property in flood prone area causing a high construction cost. In the other side, to get a low construction cost, developer could choose a vacancy land as an alternative for build a property [16].

Location is a place for buyers and sellers doing their marketing process [17]. In marketing, site selection is a distribution process which refers how the product or service can be delivered to buyer. Distribution is considered by accessibility. Accessibility is related to easiness for reaching some location [18]. Mobility is concerned with the availability of public transport. Easiness reach to the property location is also because supported by the proximity to the street [11]. Besides, it can also be seen that the property is located alongside the main street of the town has a land value higher than the land is far behind [19].

Land price can influence property's site selection. A high land values normally would affect the price of the land and also have an impact on developers who will select the land [11]. The land prices are essentially a function of the land values, or high and low price are influenced changes on land values. High and low land price is determined by the land values. Demand and supply factors are regarded as one of the factors that make a broad impact on other factors. If the property deals in the market remain while demand increases, then the value of the property will go up, nor vice versa [16]. The ups and downs of demand also offer property affected by general market conditions [20]. Furthermore, the local behavior that indicated the location of the property impact socially and culturally to the public, nor vice versa [11].

In other way, adds the capability of the developer in land purchasing would influence site selection for property development. In terms of looking for a property (land) either bought or lease, the developer must evaluate the actual purchase price or adjust the estimated cost and the return of the property development results later [14]. When considering cost land, it needs to be considered to analyze the company's financial ability, determining a land or property cost, which it is most appropriate in developer's budget and development plan.

C. Residential is a Part of Real Estate

Real estate are individual ownership. Then, the term real estate is used to describe the extent to which the rights and interest in real estate ownership. The term real estate is used to refer to things that are not movable object such as land and improvements permanently attached to the land, and then ownership rights associated with the real estate are referred to as real property [21]. In major, property classified into two types: residential and nonresidential. The residential is means staying, settled either permanently or not. It can be consisting of most of the houses instead of shops and businesses, or it could be said about the residential housing and its owner [10]. Residential classified into two types: single-family and multi-family [21].

Single-family can be form into a single house, detached, cluster house, and zero-lot-line development. While multi-family is a high and low building like apartment. Multi-family property type is always distinguished by its location (urban and non-urban) and the building size (high-rise, low-rise building or a garden apartment).

D. Location Theory

Apartment is one type of multi-family residential, which has a function as a place to stay, settling and perform daily activities. Therefore, in this research used approach to matters relating to the theories and concepts of residential location. There are several considerations that underlie the site selection of housing development. There are several considerations that underlie the residential location choice [22]. Accessibility to the city center: highways, public transportation to work, shopping centers, schools, and recreation areas.

1. The physical characteristics of neighborhoods
2. Facilities and services of utility.
3. The social environment, ethnicity, image and demographics.
4. Characteristics of the location and the home: land area, building area, number of rooms and maintenance costs.

In site selection is needs to consideration easiness reach to office and it could blend with the surrounding [23]. Besides, in site selection needs to consider availability public transport, public facilities (health care, social, economy, school). There are several criteria that must be considered in site selection of housing, including zoning (zoning); 4 technical factors such as soil conditions and topography; accessibility and traffic conditions; aesthetics include scenery and landscape of the existing (view an interesting consideration to be seen); and a community that is related to the environment including health and services organized by the government [24]. There are three main considerations factor in determining the location of housing development which is a factor of physical, accessibility, and price [25]. There are several factors that

influence site selection of the property is as follows: land physical, environment, accessibility, proximity to downtown and services, availability water and electricity resource, land price, land ownership, suitable with document planning, suitable with surrounding, and supply-demand [26].

Related to the concept of marketing strategy, one aspect of marketing is the standpoint of consumers related to consumer wants and needs. In an effort to gain customer satisfaction in the middle of the competition, a developer must first understand how the buyers of residential property (apartments) in choosing where their residence.

More strategic location, more demand to purchase residential [27]. The location is a major factor and it is important that can affect the demand for housing. Various aspects such as proximity to the town center, educational facilities, the workplace and so on the basis of considerations in choosing a home stay. Selection and determination of locations for residential property for each person is different according to each individual consideration. The criterion that serves as consideration and evaluation of a location of the apartment / condominium is land use, accessibility, potential view, proximity to public facilities, and the availability of municipal utilities [28].

Then some of the theories and concepts related to home buying interest are generally used as the theoretical approaches. The quality of life follows convenience and safety of a house is determined by its location [29]. The attractiveness of a location is determined by two things: the accessibility and the environment. Accessibility is the appeal is determined by the ease of attainment to activity centers such as trade centers, educational centers, industry zone, banking services, recreation, government services, professional services and even a blend of all of these activities. It has previously also put forward by Hansen in a theoretical model which predicts the existence of gravitational attraction between accessibility to the location. This model is based on an assumption that the accessibility of employment is the main factor that determines the location of population growth [30].

In addition to accessibility, Hansen also stated that many of the factors that determine the population will be attracted to a particular area are the amount of vacant land that can be used as a residential location [30]. Definite concerning human settlements and human needs that consist of several aspects. A good settlement is where settlements have accessibility to service centers such as educational services, health and sports and commerce by making way. In Indonesia, location is divided into several functions, namely the network of arterial roads, collector, local and freeway network [31]. The presence of either the center or the location of housing in the suburbs affect consumer interest in buying housing. The more strategic location of the apartment means getting better and has a higher level of demand. Besides, secure is a needs for human to live[32]. The price of the land can also be affected by the level of environmental safety from crime. In those research shows that the higher the level of security of a region, the increased value of the land and that ultimately the impact of the increase in land prices [33]

III. METHODOLOGY

Based on the purpose of the research, the concept of this research is using descriptive methodology, which aims to find the important factors that influence the apartment's site selection by developers. Variables in this research are derived from the literature review and a preliminary survey conducted in expert and practitioners that are experienced in site selection, especially experienced in property or real estate development.

Based on literature review and preliminary survey, there are twenty variables it may affect the decision making of developer regarding to selection location for apartment. Those variable are consist of land physic, proximity apartment with urban activities center and road, availability of public transportation, availability of urban utilities, vacancy land, population density, land price, land tax, landowner status, zoning, esthetic, location in growing suburb, urban and regional planning, organization culture, corporate planning, township area, ability of developer, market demand, local culture, and security.

A. Variable Measurement

Variables were obtained from the literature will be used in this research instrument. Measurement techniques in the questionnaire data in this research is the analysis using a subset of the statistics attitude scale. Attitude scale used is using a grading scale with a score range 1 -7. Therefore, this scale is used to measure the respondents' opinions and perceptions of the factors that influence developer for choosing their land. Variable measurement plot figured in Fig. 1.

Variable	Scale Approval						
	← Not Agree						→ Agree
	1	2	3	4	5	6	7
X1							
X2							
X3							
...							
Xn							

Fig. 1. Variable Measurement Sheet

Grading scale that raw data can be a number then interpreted in a qualitative sense. Grading scale used to measure the attitude of the symptoms, or social phenomena such as the economy, science and technology, institutions, performance, process activities, job satisfaction, work productivity, motivation, and so forth. Analyzing data is using mean and standard deviation principal. Respondents were asked to give approval in 1-7. Score 7 shows that the perception or opinion of respondents with the highest scores and the score 1 indicate where the perception or opinion of respondents with the lowest scores. The interval used intended that that seems to be no limit in giving answers or research, for which measured the perception. Perception of nature there is no limitation in the reply, there was continuous or not there are any restrictions as if the nature and length of the scoring assessment.

B. Population, Sample, and Sampling

Population is the generalization region consisting of the object / subjects that have certain qualities and characteristics defined by the researchers to be studied and then drawn the conclusion [34]. The population in this study is the developer of an apartment in the city of Surabaya. In the event that want to know the factors that influence developers in selecting an apartment construction site in Surabaya with observation and interviews to those who understand about the situation.

Samples are part of the number and characteristics of the population. It is learned from the conclusion of samples will be applied to the population. So, samples are taken by population which could represent the topic [34]. Sampling techniques were performed in this research is using nonprobability sampling: purposive sampling then followed by snowball sampling. Purposive sampling conducted to obtain initial respondents that if in accordance with the limits and scope of the research, while snowball sampling is done because researchers did not understand who else can represent this topic in population.

C. Descriptive Statistical Analysis

Descriptive analysis is a form of analysis that is used to describe the raw data in large numbers, so the results can be interpreted [35]. Descriptive statistical analysis was used to analyze statistics by describing or depicting data that has been collected as without intending to apply to the general conclusions or generalizations, and without significance test. Descriptive analysis carried out by using the ratio between the average value (mean) and standard deviation of the overall assessment of respondent perceptions of each. Furthermore, the value is mapped into Cartesian diagram (in the form of a scatter plot) in order to easily see the data distribution does have a tendency to cluster or spread. Furthermore, the value is mapped to a Cartesian diagram which is divided into four distinct quadrants. Diagram / mapping mentioned above can be seen in the Fig. 2.

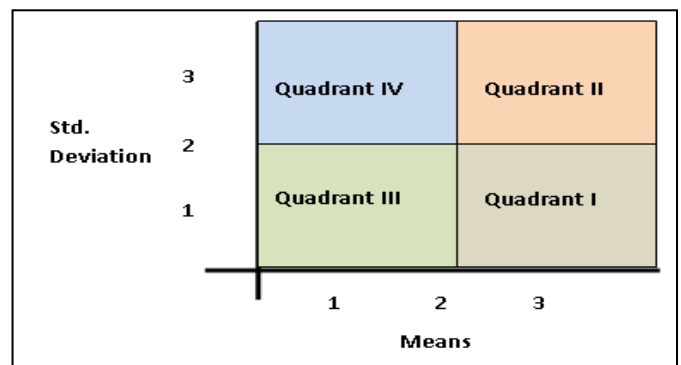


Fig. 2. Cartesian Diagram

Then it's showing the variables that occupy each of these quadrants. The reading of the mapping is done as in Fig. 2. can be explained as follows:

- a. Large Mean - Small standard deviation. Factors which are in quadrant I put in the first place because of the high mean values means most respondents give high scores on these factors, while the value of a small standard deviation means that most respondents agree on the answer.

- b. Large Mean - Large standard deviation.
Factors that are in quadrant II placed in the second because of high mean values means most respondents gives a high score on the factor, while the value of the large standard deviation means most respondents are less agree on the answer.
- c. Small Mean - Large standard deviation.
Factors that are in quadrant III placed at third place due to the low mean values means most respondents give a low score on these factors, while the value of the large standard deviation means most respondents are less agree on the answer.
- d. Small Mean, Small standard deviation.
Factors which are in quadrant IV placed in fourth due the low mean values means most respondents give a low score on these factors, while the value of a small standard deviation means that most respondents agree on the answer.

IV. APARTMENT IN SURABAYA

In 2009 the level of occupation of the apartment is still as high as 50% to increase the occupancy rate to reach 83% in 2014, proving that demand for apartments in the city of Surabaya continues to increase so that the business of residential property apartments were targeted for developers and investors. The distribution of apartment construction in Surabaya, most are located in the western part of Surabaya by 48%, then the second largest is an apartment located in Surabaya eastern part of 39%. The growth pattern of apartments in the city of Surabaya has a tendency to look at the existing market conditions such as the new family lifestyle and proximity to the campus. Observations on this research shows that the apartments are located in the eastern part of Surabaya is an apartment which has a market share of students and other institutions [5].

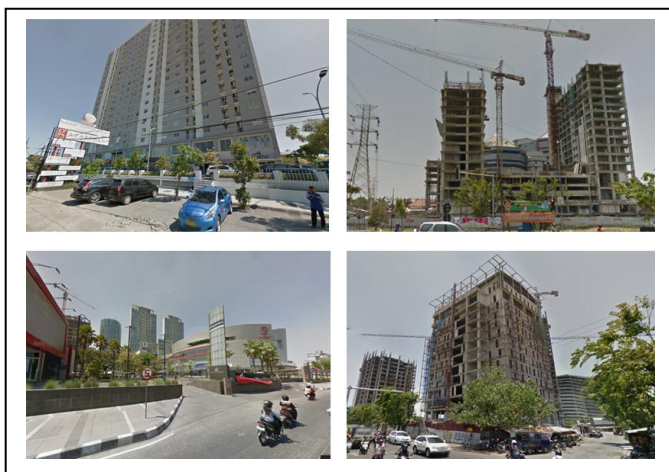


Fig. 3. Several Apartment in Surabaya (Gunawangsa Apartment, Ciputra World Apartment, and Marvell City Apartment)

In 2013, in addition to approaching the area of education as its target market, there is the phenomenon of the construction of apartments in Surabaya located in industrial areas such as Apartment My Tower. Furthermore, Praxis located in a central location Sungkono Surabaya and Grand Lagoon and The City Square which is located closer to

residential and office locations. Determining the location of the apartments is also affected by the development plan of the city of Surabaya such as planned road network and other infrastructure. This is evident in the growth apartments are located near arterial roads like MERR (Middle East Ring Road Surabaya). The development of apartments in the city of Surabaya to date suggests that the construction of apartments tend to be much in Surabaya western and eastern parts. That is because in Surabaya west and east have a good infrastructure and facilities. Moreover, in this area that the availability of vacant land that is still a lot to build apartment blocks.

V. APARTMENT SITE SELECTION FACTORS

Knowing how character the developer in choosing their location for apartment can be reached using descriptive statistical analysis.

To know the characteristics of what factors are likely to be considered by the developer in choosing the location for the construction of apartment can be known by the descriptive analysis. The descriptive analysis is a type of analysis that concluded, classify or separate component to illustrate the consistent patterns in the data, so the results can be studied and interpreted in brief and meaningful [35].

In this research of the questionnaire survey method, so the method used descriptive analysis is a statistical method. In the depiction of the patterns generated data, it is used measure of central tendency with the average value (mean), which aims to measure the tendency of a set of average data clustered or centralized in a specific numerical value; and a measure of variability with a standard deviation that seeks to measure the distribution of data deviations, meaning that if the value of the standard deviation is relatively large, the data used or the distribution of high variability, on the contrary, if the value of the standard deviation is relatively small, meaning that the data used to cluster around the average value and a small deviation.

Descriptive analysis in this research aims to depict or describe the spread of the dominance of the factors based on the average value of respondents' perceptions of assessment of each of the factors that influence the selection of the location of the apartment, as compared with the value of its spread or standard deviation values. The final results obtained from this descriptive analysis is the dominant factors or the consent order of the factors influencing the selection of apartment location of each of these factors. So the mapping diagram (plotting) the average value and standard deviation can be determined that the dominance of factors have an influence elected to the developer of the site selection and apartments factors that dominance was not elected. As a result, Cartesian diagram figured in Fig. 4.

Determination categories agree and disagree about the factors that influence the choice of location of apartments in this descriptive analysis is based on the average value and standard deviation values. Wherein the larger the average value approaching 7 (scale agreements used are intervals of 1 to 7) of each of these factors describe or demonstrate that each of the respondents gave high approval on those factors. That is the factor of getting approved can influence apartment site selection in Surabaya.

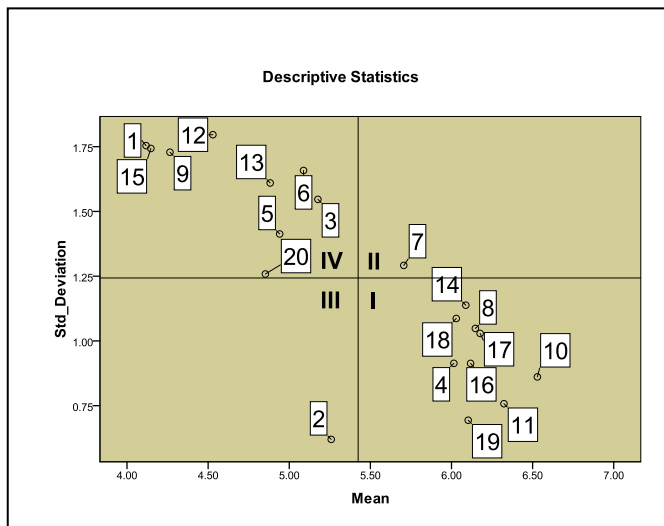


Fig. 4. Cartesian Diagram Apartment Site Selection Factor

Base on Figure 4. Explained that there are nine apartment site selection factor which into Quadrant 1:

- a. X10 → Landownership
(Mean : 6.53, Std. Dev : 0.86)
- b. X11 → Zoning
(Mean : 6.32, Std. Dev : 0.76)
- c. X16 → Strategic and Planning Corporation
(Mean : 6.12, Std. Dev: 0.91)
- d. X19 → Supply and Demand
(Mean : 6.10, Std. Dev: 0.69)
- e. X4 → Public Utilities
(Mean: 5.99, Std. Dev: 0.92)
- f. X8 → Land Price
(Mean: 6.15, Std. Dev: 1.05)
- g. X14 → Document Planning
(Mean: 6.09, Std. Dev: 1.14)
- h. X17 → Township
(Mean: 6.18, Std. Dev: 1.03)
- i. X18 → Corporate Ability
(Mean: 6.03, Std. Dev: 1.09)

Land that has a value will generate profits in the long term. That advantage means is a land to be built apartment can later be utilized properly and efficiently in the long term. Before the developers decided to purchase land or acquire land to be built a property the developer must evaluate and choose the land [14]. A land can be evaluated from the status of land ownership, because the clarity of the status of ownership is related to the ease of implementation of land acquisition in the future development of the property [26]. Land which has been owned by the community (individuals) will be more complex in land acquisition, because if a developer needs a lot of land for the construction of apartments while the land lot owned by individuals, the level of negotiation will be much more complicated than if the land is owned by the government or the company. In addition, the land acquisition will be owned by individuals lead to local social and environmental issues that will arise. According to the respondent, the ownership status of the land to developers is quite important, because it will affect the certification status of the building will be owned by consumers (buyers of apartments). If apartment

built in rented land the, buyers could only acquire building rights for 20 years and after that those land will be returned to the land owner (landowner / landlord).

On this case, ability of developers is essential. The ability of developers to buy land not only described the issue of cost, but it's need ability to take the opportunities of cooperation (joint venture business) with landowners and / or developers of other more experienced or stronger financially to obtain the location of the apartments are favorable [14]. Developers with a great ability could be easier to acquire land.

Supply and demand are influenced by general market conditions which is indicated by the pattern of demographic changes such as the increase of population and population distribution, the increase of purchasing power, the change of preferences [36]. Lifestyle changes, an increase in the number of workers and trends as well as the distribution of income also affected the property market demand [11]. The nature of consumer demand in assessing the condition of the land need to be considered in order to determine the level of the land value [16]. So that the site selection process, developers need to pay attention to market demand which will affect the value of the land. The higher value of the land will be the higher prices offered on the land.

According to the respondent, land prices still tend to follow a pattern of concentric where land prices will be higher when close to center of the city. According to respondent, besides the suburbs have low prices, the availability land seen both from its capacity and low taxes in South of Surabaya is still have a large opportunity to build an apartment. The developer will choose a wide area and develop in order to be able make a township. Besides, create an own township make developer easy to build another property [37].

Furthermore, the availability of clean water, electricity and internet are preferred developers needs to build an apartment. The availability of clean water is considered by developers in site selection. This is because in Surabaya availability of clean water network has not been fully met. If the location of the apartments to be built does not have sufficient water flow, then the developer was forced to make additional installation which ultimately affects the cost of apartment's construction. So the availability of clean water is quite important because it can change the concept of the construction of apartments. Finally, for adding the opportunity to gain a successful apartment, developers must have a strategic planning.

Figure 4. Explained that there is one apartment site selection factor which into Quadrant 2: variable X7 Secure with means value is 5.71 and have a std. dev 1.29. Quadrant II is describe there are many respondent agree with secure factor because it is part of consumer interest. But, secure factor does not significantly affect developer in decision making of apartment site selection. The security of apartment could be planned by developer as part of apartment building facility. So it is not necessary to consider that factor. Next, in Quadrant 3, there is variable X2 which proximity apartment with public services center. It have 5.26 for mean and 0.63 std. dev. Same with Quadrant III, it is not necessary to consider in site selection because it depends on the situation. Commonly, in Surabaya, apartment became a trigger for others activity or land use function came near to them.

Quadrant 4 describe that respondent mostly didn't agree with variables as a factor of site selection. According to the respondent, variables in quadrant 4 will be considered in specific condition, and some variables would affect indirectly for developer's decision making in site selection of apartment. There are 10 variables in Quadrant 4, follows:

- a. X3 → Public Transportation
(Mean: 5.18, Std. Dev: 1.55)
- b. X6 → Population Density
(Mean: 5.09, Std. Dev: 1.66)
- c. X5 → Vacant Land
(Mean: 4.94, Std. Dev: 1.41)
- d. X13 → Suburban area
(Mean: 4.88, Std. Dev: 1.61)
- e. X12 → Aesthetic (View)
(Mean: 4.53, Std. Dev: 1.80)
- f. X9 → Land Taxes
(Mean: 4.26, Std. Dev: 1.73)
- g. X15 → Organization Culture
(Mean: 4.15, Std. Dev: 1.74)
- h. X20 → Culture Society
(Mean: 4.85, Std. Dev: 1.26)
- i. X1 → Land Physic
(Mean: 4.12, Std. Dev: 1.75)

But, there are two variables which need more considered than the others in quadrant 4. Public transportation in Surabaya considered not fully supported, cost and time spent using public transport would be more expensive than using private, so that the people of Surabaya prefer to use a private car. Besides, public transport needs in Surabaya is not as high as the need for public transportation in Jakarta. The need for public transport over the apartment which has its own market niche that purpose such as students and workers whose inclinations are in the lower middle-class apartment. Availability of public transportation route not being exhibited significantly thing to consider especially in the middle and upper-class apartments, only developers gain added value completeness properties of transportation infrastructure. The increasing demand of housing and the economic activity that occurs in a region will trigger overcrowding. Population density or population demographics are useful in the development of public service activities and the development of the industry [38]. Despite being near the center of activity, but if the land has a high population density, then the developers will consider the land again for choosing the location was in the density will lead to social problems. The effects of the construction of apartments on society generally would add to the cost of construction of an apartment. Meanwhile, the same as the previous discussion, that the land acquisition in the area denser or solid, not a significant difference and is not the main obstacle for developers upper-middle class, especially the developers who have the ability to both financially and cooperation skills.

VI. CONCLUSION

From the analysis, it can be seen that there are 9 (nine) factors that clustered in Quadrant I which the mean value is quite high and a low standard deviation value. It can be dominant factors that affect developers in apartment site selection in Surabaya. Why Quadrant I could be a dominant factors? Because Quadrant I is describe almost respondent

agree that nine factors are important to be considered in apartment selection in Surabaya. There are several factors which need considered although it is depend on the situation or condition such as public transportation and population density. It is more affecting the decision making in apartment selection site on apartment depends on apartment classification.

REFERENCES

- [1] Nas, P.J.M., "Ecumenopolisin Asia", IIAS Newsletter, July 2003.
- [2] Yudohusodo, S., Rumah untuk Seluruh Rakyat, INKOPPOL, Jakarta, 1991.
- [3] Gaina, P.A., Hariyanto, T., "Perkembangan dan Persebaran Pembangunan Apartemen sesuai dengan RTRW Surabaya Tahun 2013 (Studi Kasus : Wilayah Barat Kota Surabaya)", Jurnal Teknik Pomits X, pp. 1-6, 2013.
- [4] Simanungkalit, P., Beli Rumah & Apartemen, Tips dan Trik, Jakarta : Panangian School of Property, 2002.
- [5] Salanto, F. (2014), Research and Forecast Report Surabaya Apartment 2H 2014, Jakarta : Colliers International Indonesia, 2014.
- [6] Adisasmita, R., Pembangunan Kawasan dan Tata Ruang, Yogyakarta : Graha Ilmu, 2010.
- [7] Yunus, H.S. (2000), Struktur Tata Ruang Kota, Yogyakarta : Pustaka Pelajar, 2000.
- [8] Catanese, A. J. dan Synder, J.C., Perencanaan Kota. Jakarta : PN Balai Pustaka, 1986.
- [9] Labib, S.M., Bhuiya, Md.M.R., dan Rahaman, Md.Z., "Location and Size Preference for Apartments in Dhaka and Prospect of Real Estate Market", Bangladesh Research Publications Journal, vol 9, pp. 87-96, 2013.
- [10] Friedman, P. J., Harris, C. J., dan Lindeman, B. J., Dictionary of Real Estate Terms Fifth Edition, New York: Barron's Educational Series Inc., 2000.
- [11] Miles, M. E., Berens, G. L., Eppli, M. J., dan Weiss, M. A., Real Estate Development Principles and Process Fourth Edition, Wanshington DC : The Urban Lamd Institute, 2007.
- [12] Ratcliffe, J. Stubbs, M. dan Keeping, M., Urban Planning and Real Estate Development, Oxon : Routlegde, 2009.
- [13] Evert, K.-J., Encyclopedic Dictionary of Landscape and Urban Planning, Berlin : Springer-Verlag, 2010.
- [14] Peca, P. S., Real Estate Development and Investment : A Comprehensive Approach, New Jersey : John Wiley & Sons, Inc., 2009.
- [15] Brown, J. R., Private Real Estate Investment : Data Analysis and Decision Making, London UK : Elsevier Academic Press, 2005.
- [16] Hidayati, W., Konsep Dasar Penilaian Properti, Yogyakarta : Balai Penerbit FEUGM, 2003.
- [17] Kotler, P., dan Armstrong, G., Principles of Markering 12th edition, USA : Pearson Prentice Hall, 2008.
- [18] Bramantyo, R., Strategi Pemasaran Student Apartment di Surabaya, Tesis Master, Institut Teknologi Sepuluh Nopember (ITS), Surabaya, 2013.
- [19] Simarmata, Dj. A., Ekonomi Pertanahan dan Properti di Indonesia, Jakarta : PT. Gramedia Widiasarana, 1997.
- [20] Setiawan, I., "Analisa Kepuasan Konsumen dalam Pemilihan Perumahan Sederhana", Neutron, vol. 4, No. 1., pp. 132-140, 2004.
- [21] Brueggeman, W. B., dan Fisher, J. D., (2008), Real Estate Finance and Investments Thirteen Edition, New York : McGraw-Hill Companies, Inc., 2008.
- [22] Nadya, N., Perumusan Pola Lokasi Apartemen Menengah Atas Di Surabaya. Tugas Akhir Program Sarjana, Program Studi PWK ITS, Surabaya, 2010.
- [23] Turner, J. F., Housing By People – Towards Autonomy in Building Environments, London : Marion Boyars Publishers Ltd., 1976.
- [24] Catanese, A. J. dan Synder, J.C. (), Perencanaan Kota. Jakarta : PN Balai Pustaka, 1986.
- [25] Carn, N., Rabiaski, J., Racster, R & Seldin, M., Real Estate Market Analysis: Techniques and Applications, New Jersey : Prentice Hall, 1988.

- [26] Rabinowitz, H.Z., Real Estate Planning, New York : McGraw Hill Inc, 1988.
- [27] Anindyajati, D. J., Faktor-faktor yang Mempengaruhi Keputusan Keluarga Muda dalam Memilih Rumah Tinggal di Surabaya, Tesis Master, Institut Teknologi Sepuluh Nopember Surabaya (ITS), Surabaya, 2014.
- [28] Astindra, N., Trilisty, H., dan Indarto, E., "Kondominium di Kawasan Segitiga Emas Kota Semarang", IMAJI, Vol. 1, No. 1, pp. 41-53, 2012.
- [29] Luhst, K.M., Real Estate Valuation, USA : Principles Application, 1997.
- [30] Suhardi, B., "Model Potensial Gravitasi Hansen untuk Menentukan Pertumbuhan Populasi Daerah", Performa, Vol. 3, No. 1, pp. 28-32, 2004.
- [31] Sinulingga, B. D., Pembangunan Kota : Tinjauan Regional dan Lokal, Jakarta : Pustaka Sinar Harapan, 1999.
- [32] Dengah, S., Rimate, V., dan Niode, A., "Analisis Pengaruh Pendapatan Perkapita dan Jumlah Penduduk terhadap Permintaan Perumahan Kota Manado Tahun 2003-2012", Jurnal Berkala Ilmiah Efisiensi, Vol. 14, No. 3, pp. 71-81, 2014.
- [33] Ghana, A. K., dan Navastara, A. M., "Pengaruh Perkembangan Permukiman terhadap Dinamika Harga Lahan di Surabaya Barat", Jurnal Teknik POMITS, Vol. 1, No. 1, pp. 1-8, 2012.
- [34] Sugiyono, Metode Penelitian Kuantitatif dan Kualitatif dan R&D, Bandung : Penerbit Alfabeta, 2010.
- [35] Kuncoro, M. (2009), Metode Riset Untuk Bisnis & Ekonomi, Jakarta : Penerbit Erlangga, 2009.
- [36] Setiawan, I., "Analisa Kepuasan Konsumen dalam Pemilihan Perumahan Sederhana", Neutron, Vol. 4, No. 1., pp. 132-140, 2004.
- [37] Jung, S., Huynh, D., Rowe, P. G. (2013), The Pattern of Foreign Property Investment in Vietnam : The Apartment Market ing Ho Chi Minh City, Habitat Internasional, vol. 39, pp. 105 – 113, 2013.
- [38] Amelia, S., Evaluasi Lokasi Kawasan Permukiman Kota Cimahi Menggunakan Analisis Sistem Informasi Geografis, Tesis Program Magister, Institut Teknologi Bandung, Bandung, 2007.