UDC 332

ANALYSIS OF DETERMINANTS OF RESIDENTIAL LOCATION CHOICE IN KUPANG CITY

Nalle Agus A.*, **Wulakada Hamza**, **Tiro Melkianus**, Teaching Staff
Asa Helena Meldy, Student
University of Nusa Cendana Kupang, Indonesia
*E-mail: agustfio@gmail.com

ABSTRACT
This research aims to analyze the determinants of settler choice in residential locations in Kupang City. This research has been carried out at residential locations in the central and suburbs/*hinterland* areas of Kupang City. The approach used in this research is descriptive qualitative methods and Analytical Hierarchy Process (AHP). The results showed that there were differences in the settler background at the residential locations in the center and the suburbs of Kupang City, namely from the aspects of ethnicity/tribe, average age, area of origin, employment and income levels. The main factor determining the choice of settler in choosing a residential location in the center of Kupang City is “accessibility” with an index value of 0.2122 which is then respectively followed by the method of obtaining/buying, surface area; environmental conditions; house type/model; house prices; residential facilities and building area. For residential locations on the suburbs of Kupang City, the main factor determining the choice is “the method of obtaining/buying” with an index value of 0.2653 which is then respectively followed by the factors of surface area; environmental conditions; house prices; building area; house type/model; residential facilities and accessibility.

KEY WORDS
Residential location, analytical hierarchy process, determinants of choice.

Many studies show the strategic role of urban areas to support regional development as a whole This is because cities in Indonesia generally not only function as centers of government, but also carry out very diverse tasks and functions. The city carried the function as a center of economic activity, trade and business, education, health and other productive activities. With such a position, it causes the flow of in-migration to the city to constantly increase from time to time. Gonzalez and De Lazaro (2011) state that nearly 90% of natural resources in the world that are managed and are a source of imbalance in their sustainability, very much depending on efficient urban environmental management and the responsibility of the community in it.

Mardiansjah, et al (2018) state that urbanization has brought a fast change and change many aspects of the urban process in many developing countries. In particular, in the process of forming an urban formation that extends to the surrounding areas, both to meet economic needs, production process as well as for social and consumption needs. Urbanization is a phenomenon caused by the concentration of population and their activities in a certain area so that the density of the area is higher than in other areas around it (Sato & Yamamoto, 2005 cited by Mardiansjah, et al, 2018). Even long before that, Tisdale (1942) also argued that population growth in urban areas greatly influences the urbanization process that occurs in an area.

Ariyanto (2017), Aaron, M., & Felix (2020), Surya et a. (2020), stated that the modernization of urban areas has triggered the development of a high flow of urbanization where the population will increase and have an impact on increasingly diverse socio-cultural existence, so that what was once dominant homogeneous society become a heterogeneous society. Population growth that occurs in urban areas has resulted in the increase of housing demand. As a result, the growth and development of new residential centers in various parts of the city area, along with their various characteristics and traits. According to Kimtaru (2004) quoted by Mardiyati, et al. (2016) that the need for housing can be divided into two

things, namely the need for housing based on the natural trend of population growth and the need and provision of houses based on the number of habitable ones. With housing based on needs, many housing developers are competing to get customers by offering locations, public facilities, payment systems, house designs and house quality, environments, and varying prices. This fact is reinforced by Giyarsih (2001), Festus et al. (2020), Abass et al. (2020), Timsina et al. (2020), Osumanu, I. K., & Akomgbangre (2020), Jonas (2020), Fang, Y., & Wu (2020), who states that the result of urban development is a tendency to shift urban functions to the suburbs (*urban fringe*) which is called the process of spreading the physical appearance of the city outward (*urban sprawl*). This has resulted in the spreading of the population towards the suburbs, resulting in the construction of housing and supporting facilities such as office facilities, trade and services, education and other supporting facilities in big cities, mostly in the suburbs or in urban development areas.

Kupang City as the center of government of East Nusa Tenggara (NTT) Province cannot be separated from the development phenomenon that is common in other cities in Indonesia. In its capacity as the center of government, along with the number of social, economic and trade facilities and activities that are more adequately available, making this area the main target of the population for migration and urbanization. The Central Statistics Agency (BPS) of Kupang City reported that the average population growth of Kupang City between 2010-2019 was recorded at 2.84%/year. The growth rate is derived from natural growth (birth) and in-migration and/or urbanization.

The mapping of population growth of Kupang City over sub-district areas, BPS of Kupang City reported that the highest growth rates were in the sub-districts of Alak, Maulafa and Kelapa Lima, namely between 2017-2018 respectively of 3.47%/year; 2.55%/year and 4.10%/year. The average population growth in 2018-2019 in Alak sub-district increased to 6.27% and Maulafa sub-district by 4.40%. The relatively higher rate of population growth in the two sub-districts on the suburbs of Kupang City is caused in addition to natural growth due to births, is also presumed due to population growth due to migration. The intended migration is mainly to occupy new residential locations in the form of ready-to-live housing provided by developers with sizes and locations that vary from one another.

The growth and development of new residential areas in the part of the Kupang City Area have essentially followed the trend of housing demand as a result of the increasing population. Demand trends are influenced by various factors such as location, house prices, the availability of residential facilities, the economic capacity of buyers, and so on. Likewise, in line with the development and growth of urban activity, especially in the central area of Kupang City, it has led to an increasing shift in urban activities including settlements to the suburbs/*hinterland* of Kupang City. Based on the background description above, the problem of this research is what factors determine the choice of new residential locations for settler in Kupang City. For this reason, the purpose of this research is to analyze the determinants of settler choice of new residential locations in Kupang City.

METHODS OF RESEARCH

This research was conducted in Kupang City, namely in residential locations both in the the central and suburbs/*hinterland* areas of Kupang City. The research was conducted for 4 (four) months, from July to October 2020.

The determination of the sample was carried out in stages, the first stage is sample location of a new settlement which was carried out by *stratified random sampling* , namely the location of the settlement in the central and suburbs/*hinterland* areas of Kupang City. The second stage is the selection of respondents, which is carried out using *simple random sampling* technique, in which the total number of respondents is 50 settlers, each with 25 respondents at each settlement location, and at least have occupied them for the last 1 year.

The data was collected through a survey using a *Focus Group Discussion* (FGD) technique with selected respondents at each residential location in the center and suburbs of Kupang City.

Analytical Hierarchy Process (AHP) is applied for solving problems and achieving the objectives of this research. The principles of AHP are:

(1) Decomposition. Decomposition is effort to break down/divide the problem into its elements into a form of hierarchical process for decision making, where each element is interrelated. The decision hierarchy structure is categorized as complete, if every element at one level has a connection to every element at the next level. An incomplete decision hierarchy is the opposite of a complete hierarchy. The form of the decomposition structure, namely: a) The first level: Decision goals (Goal); b) The second stage: Criteria, and c) The third level: Alternatives.

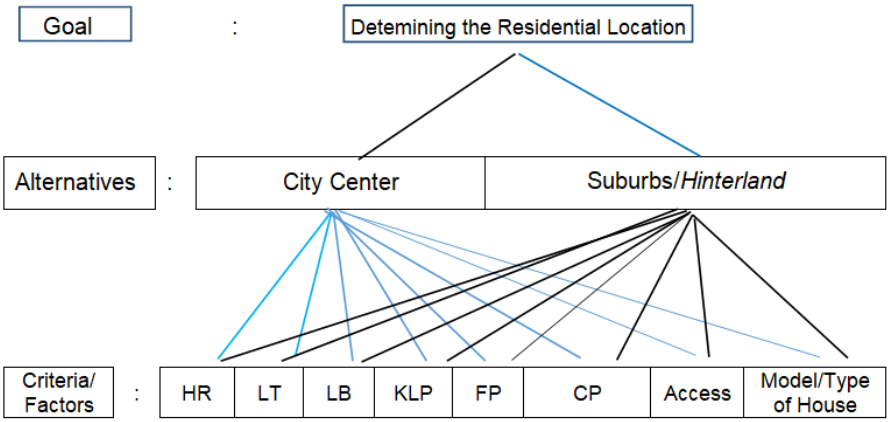
(2) Comparative Judgement. Comparative Judgment is an assessment based on the relative importance of two elements at a certain level in relation to the level above it. Comparative Judgment is the core of using AHP because it will affect the priority order of its elements. The results of the assessment will be shown in the form of a pairwise comparison matrix containing several alternatives preference levels for each criterion. The preference scale used is scale 1 which indicates the lowest level (equal importance) to scale 9 which indicates the highest level (extreme importance).

(3) Synthesis of Priority. Synthesis of Priority is carried out using the eigenvector method to obtain relative weights for decision-making elements.

(4) Logical Consistency. Logical Consistency is carried out by using every eigenvector obtained from various hierarchical levels and then a weighted composite vector is obtained which results in a decision-making sequence.

Based on the principle above, the steps applied in AHP analysis namely:

1. Formulate a hierarchy of objectives, alternatives and criteria/factors from this research:



Where:

HR: House Price;
LT: Surface Area;
LB: Building/House Area;
KLP: Environmental Condition of the Settlement;
FP: Residential Facility;
CP: Obtaining Method.

2. Determine the priority of the elements:

- The first step is to make a pair comparison, which is to compare the elements in pairs according to the given criteria;
- The pairwise comparison matrix is filled using numbers to represent the relative importance of one element to another.

3. Synthesis. Considerations for pairwise comparisons are synthesized to obtain overall priority. The things that are conducted in this step namely:

- Add up the values of each column of the matrix;

- Divide each value from the column by the total of column in question to get the normalized matrix;
- Add up the values from each row and divide by the number of elements to get the average value.

4. Measure consistency. In making decisions, it is important to know how good the consistency is because it is not desirable to make decisions based on considerations with low consistency. The things that are conducted in this step namely:

- Multiply each value in the first column by the relative priority of the first element, the value in the second column by the relative priority of the second element, and so on;
- Add up each row;
- The result of the summation of the rows is added by the corresponding relative priority element;
- Add up the summed result above by the number of the present elements, the result is called λ max.

5. Consistency Index (CI), calculated by the formula: CI = (λ max-n)/n; where n = the number of elements.

6. Consistency Ratio (CR), calculated by the formula: CR=CI/IR; where CR=Consistency Ratio; CI=Consistency Index, and IR= Random Consistency Index.

7. Check the consistency of the hierarchy. If the value is more than 10%, then the data valuation must be corrected. However, if the consistency ratio (CI/IR) is less or equal to 0.1, then the calculation results can be declared correct.

RESULTS AND DISCUSSION

There are variations in the background of the settler which occupy the location of settlements in parts of the center and suburbs/*hinterland* area of Kupang City in terms of age, ethnicity, origin of previous settlements, length of stay and other various identity variables, as presented in Table 1.

The average age of the settler in the residential areas in the center of Kupang City is higher than that of the settler in suburban settlement areas. This difference is presumed to have been influenced by the earlier development of residential locations in the center than in the suburbs of Kupang City. Settlement locations in the center of Kupang City have been built and occupied since 1981, while a number of new settlement locations in the suburbs of Kupang City began construction in 1989, followed by a number of settlement locations scattered in the Maulafa and Alak sub-districts. Other factors that influence the settler in the suburban settlement locations are those who have just moved/migrated to Kupang City, or those who have not been married for too long so they need to fulfill their housing needs independently.

Table 1 – Settler Background on the Residential Location in Kupang City

No	Description	Unit	Residential Location	
			City Center	Suburbs/*Hinterland*
1.	Average Age of Settler	Year	52,16 ± 9,16	47,68 ± 10,41
2.	Average length of stay	Year	19,40± 3,48	15,00 ± 8,59
3.	Regional/ethnicity background:			
	a. Comes from tribes in NTT	Percent	56	40
	b. Comes from tribes outside NTT	Percent	44	60
4.	Origin of previous settlement:			
	a. Other sub-district in Kupang City	Percent	56	36
	b. From outside Kupang City	Percent	44	64
5.	Settler Ocupation:			
	a. State Civil Apparatus (ASN)	Percent	24	32
	b. Entrepeneur	Percent	36	52
	c. Retired	Percent	20	12
	d. Others	Percent	20	4
6.	Average Income Range:	Percent		
	a. 3 – 6 million/month	Percent	24	20
	b. 7 – 10 million/month	Percent	24	40
	c. 11 – 15 million/month	Percent	32	36
	d. > 15 million/month	Percent	20	4

Settler in the central residential locations in Kupang City are more dominant with ethnic/tribes from within the NTT region, while the suburban residential locations are more dominant with ethnic/tribes from outside NTTs. Likewise, settler in the central residential areas of Kupang City are predominantly from other sub-district in the area of Kupang City, while in the suburban residential locations in Kupang City are dominated by those who previously came from outside Kupang City. These results reinforce the meaning that due to the increase in population, the need for housing increases. And the shift in the location of new settlements to the suburbs of Kupang City increased and become a strong attraction for a number of existing settlers.

Within the same income range (between IDR 7-10 million/month and IDR 11-15 million/month), the percentage of settler in the suburban residential areas is higher than in the central area of Kupang City. This difference is presumed due to the large number of settler in suburbs areas being in the productive age group and added with a more dominant occupation background as self-employed, so that the potential for household income is higher. The observation results show that settler who come from outside the NTT area (migrants) because of official duties, treat their current house/residence as a stopover as long as they live and work in Kupang City. Even treating houses as medium and long term investment items, by the time they reach pension time and/or finish working in Kupang City.

Figure 1 shows the average surface area, initial building area and building area from the results of development carried out by the settler in the central and suburban residential locations of Kupang City. The average surface area of residential buildings in the center of Kupang City is 180.76 m^2, which is relatively wider than that of the suburbs of Kupang City, which is 166.04 m^2. The wider surface area in the settlement location in the center of Kupang City is the result of the settlement location was built when land prices were still relatively cheap and land was still available to accommodate new residential development policies.

The building area at the time of construction also differs between residential locations. The average houses area when they were initially built in the central location of Kupang City was relatively wider than in the suburbs. Meanwhile, over time, the house that is occupied has been developed with an area that is adjusted to the needs of the increasing number of family members and the area of existing land. At the residential location in the center of Kupang City the average area of the initial building area of 45.52 m^2 increased to an average area of 92.80 m^2. Meanwhile, in suburban residential locations, the increase was from 37.68 m^2 to an average area of 85.00 m^2.

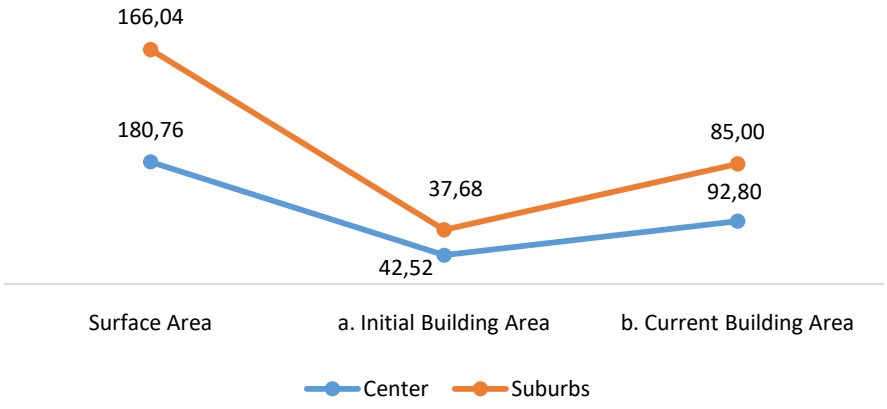


Figure 1 – Surface Area, Initial Building Area and Current Building Area (m^2), Residential Location in Kupang City

Comparing the surface area with the built-up area, it is found that more than 51% of the available surface area in each residential building has been converted as a built-up area. This condition, when associated with open areas which are important in maintaining urban spatial water management, will have an effect, especially the rate of water absorption

(infiltration) during the rainy season. In residential locations on the suburbs of Kupang City, which geographically occupy areas that are *catchment areas*, such as in Kolhua, Belo, Naioni and Manulai sub-districts, it is estimated that this will reduce the availability of groundwater, especially in the downstream area which is generally the central area of Kupang City and its surroundings. From the description of the position of residential locations as well as the comparison of surface area and built-up areas, it is necessary to have a serious arrangement from the Kupang City government, which collaborates with developers and settler communities in an effort to address the need for green open space in each residential location, especially those taking locations in the suburbs of Kupang City. This is important so that on the one hand the needs for housing for the community are met, on the other hand it does not disrupt environmental stability.

By using the AHP analysis approach to the perceptions given by the respondents, the *Consistency Ratio* (CR) value of a number of choice determinants was obtained respectively 0.0280 for the central residential location of Kupang City and 0.00015 for the suburbs/*hinterland* residential locations of Kupang City. Based on the two low CR values (CR <0.1), it can be concluded that the process of determining the priority of the criteria/determinants in this research is quite consistent or correct.

Figures 2a and 2b show the eigenvalues and rankings of each of the determinants of settler choice of residential locations in the center and suburbs of Kupang City.

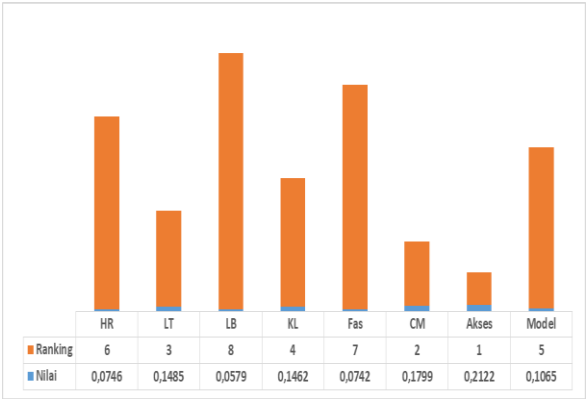


Figure 2a – Eigenvalues and Ranks of Determinants for the Choice of Residential Location in the Center of Kupang City

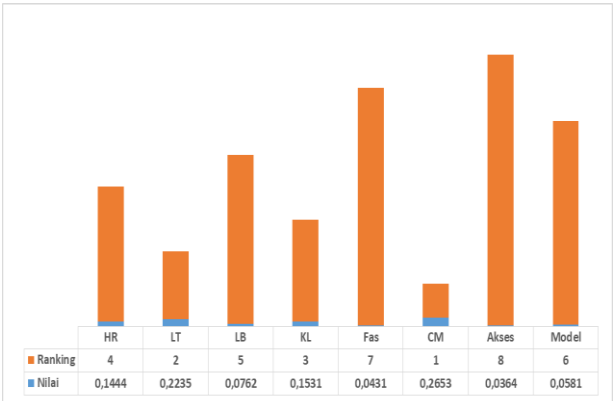


Figure 2b – Eigenvalues and Ranks of Determinants for the Choice of Residential Location in the Suburbs of Kupang City

Figure 2a shows that the factor of accessibility is a priority determinant when consumers choose a residential location in the center of Kupang City which then respectively followed by the factors of obtaining method, surface area, environmental conditions, type/model of house offered, and other factors. The choice of the accessibility factor is mainly related to consumer activities, such as coverage to office facilities, educational facilities, health facilities and other economic facilities. Accessibility is a determinant for settler to choose a location in the center of Kupang City. In essence, it is a common phenomenon that occurs for many consumers in other cities in Indonesia. Access coverage will affect the achievement of a location both distance and travel time, so that indirectly accessibility will also affect the cost and selling value of housing.

Other factors that are taken into consideration by settler are the method of obtaining/buying the house that are offered, surface area, environmental conditions, and the type/model of the house are all factors that compositely affect the decision of settler to buy and occupy a settlement in the center of Kupang City. When there is facilitation from the developers who also get subsidies from the government facility, causing consumers willing to take/buy a house in the city center, although the price offered is still relatively more expensive than the settlements located on the suburbs of Kupang City.

Figure 2b shows the eigenvalues and the ranks of the determinants for the choice of residential locations in the suburbs of Kupang City. The method of how to obtain is a major

determinant compared to other factors. Afterwards, the factors of surface area, residential environmental conditions, house prices, building area and other factors were taken into consideration when settler chose and occupy a residential location in parts of the suburbs area of Kupang City at this time.

Since the government has developed a policy of providing housing for low-income community (MBR) with various facilities to own a house, it has become an attraction for settler to choose and own houses independently. There are numbers of criteria that are conditions for subsidized housing, namely:

- The surface area is not less than 60 m^2;
- The maximum building area is 36 m^2;
- First private residence;
- Not transferred over to another person within 5 years of purchase;
- The selling price follows the maximum selling price of each zone in Indonesia. In this case the government has determined according to each area. For example, the selling price of a subsidized house for Bali and Nusa Tenggara regions in 2016 was IDR 133,500,000 per unit increased to IDR 148,500,000 per unit for 2018.

With the criteria and requirements for subsidized housing above, many people feel helped, especially those with low incomes. Likewise, when the price of land in the suburbs is relatively cheaper than in the city center, it causes developers to prefer to build new settlements in suburban areas. Surface area is also a consideration for settler to occupy residential locations on the suburbs of the city, and is enhanced by the environmental conditions of the settlement, house prices and building area as driving factors for settler in considering options for residential locations on the suburbs of Kupang City at this time.

The environmental condition is a consideration for settler to buy and occupy residential locations on the suburbs of Kupang City. The facts show that in line with the increasing urban activity that tends to agglomerate in the central region, the level of space density per unit of activity in the city center continues to increase. As a result, there was a shift in activities to the suburbs, which are areas with better environmental and air conditions (clean and comfortable air).

The results of this research are almost symmetrical with the research of Adam, et al. (2020) which examines the preferences of settler in choosing housing in Karanganyar Regency. It was found that settler in choosing housing, they put safety and comfort factor as the first priority, followed respectively by the factors of location, legality, completeness of facilities and prices. Based on the overall findings of the research above, a comprehensive arrangement is needed from the Kupang City government and developers in developing settlement locations based on careful considerations, namely from technical, social, economic, and environmental aspects. This is important so that on the one hand consumer demand can be fulfilled, and on the other hand it does not affect the sustainability of the existing residential environment.

CONCLUSION AND SUGGESTIONS

From the results of this research, the conclusion that can be formulated namely:

1. There are differences in the settler background in residential locations in the center and the suburbs of Kupang City, namely from the aspect of ethnicity/tribes, average age, area of origin, employment and income levels.
2. The main factor determining the choice of settler in choosing a residential location in the center of Kupang City is “accessibility” with an index value of 0.2122 which is then respectively followed by the method of obtaining/buying, surface area; environmental conditions; house type/model; house prices; residential facilities and building area. For residential locations on the suburbs of Kupang City, the main factor determining the choice is “the method of obtaining/buying” with an index value of 0.2653 which is then respectively followed by the factors of surface area; environmental conditions; house prices; building area; house type/model; residential facilities and accessibility.

Based on the conclusions above, the suggestion that can be proposed is that there is a need for a Kupang City government policy in developing new residential locations that can encourage the flexibility of settler in determining their choices. Besides that, the development of residential locations should also consider the sustainability of the settlement environment, especially from the physical, socio-cultural and economic aspects of the community.

REFERENCES

1. Aaron, M., & Felix, A. I. (2020). Effect of Rural-Urban Migration on Rural Areas: A Case of North-East Zone, Nigeria. Metropolitan Journal of Business & Economics, 157
2. Abass, K., Buor, D., Afriyie, K., Dumedah, G., Segbefi, A. Y., Guodaar, L., ... & Mohammed, A. (2020). Urban sprawl and green space depletion: Implications for flood incidence in Kumasi, Ghana. International Journal of Disaster Risk Reduction, 101915.
3. Adam, M.R; Setiono, Augiyarto, 2020. Preferensi Masyarakat Dalam memilih Perumahan Dengan Menggunakan Metode Fuzzy Analytical Hierarchy Process Di Kabupaten Karanganyar. E-Jurnal Matriks Teknik Sipil, Universitas Sebelas Maret. Hal. 175-182
4. Ariyanto, (2017). Determinan Pembangunan Kawasan Kota Baru Moncongloe-pattallassang Metropolitan Mamminasata. Jurnal Plano MadaniVolume 6 Nomor 1, April 2017, 73 - 84 © 2017 P ISSN 2301-878X - E ISSN 2541-2973.
5. Badan Pusat Statistik, 2020. Kota Kupang Dalam Angka.Katalog: 1102002.5371.
6. Fang, Y., & Wu, Z. (2020). Visioning Urban Growth in Chengdu. The Routledge Handbook of Planning Megacities in the Global South.
7. Festus, I. A., Omoboye, I. F., & Andrew, O. B. (2020). Urban Sprawl: Environmental Consequence of Rapid Urban Expansion. Malaysian Journal of Social Sciences and Humanities (MJSSH), 5(6), 110-118.
8. Giyarsih, S.R., (2001). Gejala Urban Sprawl Sebagai Pemicu Proses Densifikasi Permukiman Di Daerah Pinggiran Kota (Urban Fringe Area). Kasus Pinggiran Kota Yogyakarta. Jurnal PWK. Vol. 12, Nomor 1, Maret 2001. Hal 40-45.
9. Gonzalez, M.J and M.L. De Lazaro, (2011). Urban Development and Sustainability.European Journal of Geography, https://www.researchgate.net/publication/ 283462728.
10. Jonas, A. E. (2020). China's urban development in context: Variegated geographies of city-regionalism and managing the territorial politics of urban development. Urban Studies, 57(3), 701-708.
11. Mardiansjah, F.H; W. Handayani dan J.S. Setyono, (2018). Pertumbuhan Penduduk Perkotaan dan Perkembangan Pola Distribusinya pada Kawasan Metropolitan Surakarta. Jurnal Wilayah Dan Lingkungan P-ISSN: 2338-1604 dan E-ISSN: 2407-8751 Volume 6 Nomor 3, Desember 2018, 215-233 http://dx.doi.org/10.14710/jwl.6.3.215-233.
12. Osumanu, I. K., & Akomgbangre, J. N. (2020). A growing city: patterns and ramifications of urban change in Wa, Ghana. Spatial Information Research, 1-14.
13. Surya, B., Syafri, H. A., Sahban, H., & Sakti, H. H. (2020). Spatial Transformation of new city area: Economic, social, and environmental sustainability perspective of Makassar City, Indonesia. Journal of Southwest Jiaotong University, 55(3).
14. Timsina, N. P., Shrestha, A., Poudel, D. P., & Upadhyaya, R. (2020). Trend of urban growth in Nepal with a focus in Kathmandu Valley: A review of processes and drivers of change.
15. Tisdale, H., (1942). The process of urbanization. Social Forces, 20(3), 311–316. doi:10.2307/3005615.