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Housing Developmet of Environmental Insightful of City Manado

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Abstract:- This article aims to determine the effect of housing development from a decent housing plan and healthy housing infrastructure simultaneously on the environmental carrying capacity of the City of Manado. The results of the multiple linear regression of a decent housing plan and healthy housing infrastructure in simultaneous housing development have a very significant effect on the carrying capacity of the city of Manado. The results of the double correlation analysis of 68.20 percent of the variations in the environmental carrying capacity of the City of Manado can be explained simultaneously by the plan for adequate housing and healthy housing infrastructure in housing construction. To find out the influence of housing development from the proper housing plan and healthy housing infrastructure separately on the environmental carrying capacity of the City of Manado. The result of simple linear regression of feasible housing plans in housing development significantly influences the carrying capacity of the city of Manado. The results of the partial correlation analysis of 34.73 percent of the variations in the environmental carrying capacity of the City of Manado can be explained by the plan of decent housing in housing construction. The result of simple linear regression of healthy housing infrastructure in housing construction has a significant effect on the environmental carrying capacity of the City of Manado. The results of the partial correlation analysis of 22.82 percent of the variations in the environmental carrying capacity of the City of Manado can be explained by the variations in the carrying capacity of the city of Manado can be explained by the plan of decent housing in housing construction. The city of Manado is one of the cities in Indonesia which is located in a coastal area with all activities of its settlement, growth and development, mostly towards the construction of housing that provides simple, medium and luxurious housing, so housing is a house that all the processes of development, use and demolition try to does not disturb the balance of nature, even if possible improve the quality of the environment. That efforts for the comfort and health of residents must be achieved with a technical approach that does not damage nature. In other words, the house building must have an orientation towards the site and the environment.

Keywords:- *Housing development; Environment.*

I. INTRODUCTION

The right national development policy is measured from the development of the suitability and optimization of the potential of natural resources, human resources and physical (artificial) resources. Development policies that do not rely on these three potential resources will be difficult to say as sustainable development. Ineffective development can also be experienced if aspects of human resources as part of social aspects are not considered. Traditional values, technological capabilities and human resource potential must be aligned with the pace of development. Therefore, to achieve sustainable development that is based on space, it can be used as an umbrella of development and control policies in its implementation.

Aminudin, (2007: 12) states that in the traditions of traditional societies, a house is more than just a place of shelter from the weather and everything that is considered an enemy, is loaded with meanings as a result of culture, tradition and values adopted. As well as the natural environment at large. This means that humans, house construction, building materials and the environment such as mountains, natural stones, trees or other plants can be compared to living things, not inanimate objects. In many terms the house is more described as something that is physical (house, dwelling, shelter) or building for a residence / building in general (such as buildings and so on). where humans love and share with those closest to them.

Republic of Indonesia Law number. 01 of 2011 concerning Housing and Settlement Areas, article 35, (1) Large-scale housing development with balanced dwellings covering simple houses, medium houses and luxury homes. Article 38 (1) The construction of houses includes the construction of single houses, series houses and / or flats. (2) The construction of houses as referred to in paragraph (1) shall be developed based on typology, ecology, culture, economic dynamics in each region, and taking into account safety and security factors. (3) Housing construction as referred to in paragraph (1) may be carried out by everyone, the Government and / or regional government. (4) Housing and housing developments must be carried out in accordance with the regional spatial plan.

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Urip Santoso, (2013: 27) stated that various housing procurement programs have been carried out by the Government and the private sector (real estate). But what has been done has not been sufficient, both in terms of quality and quantity. In terms of numbers, it turns out that the Government and the private sector are only able to provide around 10% of the housing needs, while the rest is built by the community themselves. In terms of quality, many parties are of the opinion that the existing program has not touched holistically the social and economic dimensions of the community, so that improvements still need to be sought.

Manado City is one of the cities in Indonesia which is located in a coastal area with all its activities and settlements. The growth and development of the city of Manado is largely directed towards housing development which provides simple, medium and luxury homes. However, it is unfortunate that on average housing is being built improvised, and strived for all land to become land plots, regardless of needs that are the standard of a decent residential environment.

Housing planning must use an ecological approach, housing is seen as an inseparable part of the ecosystem. The whole part of the house, starting from the process of manufacture, use, until the demolition will greatly affect the balance of nature, (Syarief 2000: 6) decreasing environmental quality increasing global temperatures; increased water, air and soil pollution; reduced biodiversity; the reduction in energy reserves from oil and gas which is largely caused by uncontrolled development, is a problem that must be solved by an environmentally friendly technological approach.

II. RESEARCH METHOD

A. Data Collection Methods

Siregar, S. (2017: 19) states that direct observation is data collection activities by conducting direct research on the environmental conditions of research objects that support research activities, so that a clear picture of the object's condition is obtained. In this article secondary data is obtained from monographs and statistical data.

Menurut Sangadji, E.M. dan Sopiah. (2010 : 46). kuesioner atau angket sebagai pengumpulan data penelitian pada kondisi tertentu kemungkinan tidak memerlukan kehadiran peneliti. Pertanyaan peneliti dan jawaban responden dapat dikemukakan secara tertulis melalui suatu kuesioner. digunakan pada penelitian ini, untuk mendapatkan data primer dan menggunakan daftar pertanyaan disampaikan kepada responden untuk diisi dengan jawaban secara bebas. Pertanyaan tersebut sesuai dengan variabel - variabel penelitian atau obyek yang diteliti.

B. Definition of Variable Operations

- *Housing Development (X)*
- *Proper housing plan (X1)*

Hendrawan, (2004: 54) states that the house is a social system rather than a physical system. This is because the house is closely related to humans, who have different social traditions, behaviors and desires that are always dynamic, hence the house is complex in accommodating concepts in human beings and their lives. Some concepts about the house as follows: 1). The house as a manifestation of identity, the house as a symbol and reflection of the values of personal tastes of its inhabitants. 2). House as a place of intimacy; a feeling of belonging, a sense of togetherness, the warmth of love and a sense of security; 3). Home as a place of solitude and solitude; a place to escape from the outside world, from pressure and tension, from the routine world 4). Home as a root and continuity; home is a place back to the roots and foster a sense of continuity in the process string into the future 5). The house as a container for the main daily activities 6). The house as the center of social networks 7). Home as Physical Structure.

Republic of Indonesia Law number. 01 of 2011 concerning Housing and Settlement Areas, Article 1, (3). Housing and residential areas are organized for: a). provide legal certainty in the administration of housing and settlement areas; b). supporting regional arrangement and development and proportional distribution of population through the growth of the residential environment and residential areas in accordance with the spatial plan to realize a balance of interests, especially for the MBR; c). increasing the effectiveness and effectiveness of natural resources for housing development while still taking into account the preservation of environmental functions, both in urban and rural areas; d). Empower stakeholders in the field of housing development and settlement areas; e). support development in the economic, social and cultural fields; and f). ensure the realization of a livable and affordable home in a healthy, safe, harmonious, organized, planned, integrated and sustainable environment.

According to Urip Santoso (2013: 62) Housing planning must use an ecological approach, housing is seen as an inseparable part of the ecosystem. The whole part of the house, starting from the process of making, using, until the demolition will greatly affect the natural balance. Declining quality of the environment-increasing global temperatures; increased water, air and soil pollution; reduced biodiversity; the reduction in energy reserves from oil and gas which is mostly caused by uncontrolled development, is a problem that must be solved by an environmentally friendly technological approach.

- *Healthy housing infrastructure (X2)*

The construction of settlement infrastructure is: a). Improving the quality of life and livelihoods, the dignity, status and dignity of the people living in a healthy and orderly settlement. b). Realizing a better arranged city area in accordance with its functions as stipulated in the relevant city spatial plan. c). Encourage more efficient use of land with the construction of flats, improve the orderliness of building buildings, facilitate the provision of infrastructure and environmental facilities needed for settlements and reduce the disparity in the welfare of residents of various regions in urban areas. human life in society by utilizing existing infrastructure optimally in accordance with its function (Komarudin, 2000: 41).

Law of the Republic of Indonesia number 1, 2011 concerning Housing and Settlement Areas, Article 1, (21). Infrastructure is the basic physical completeness of the residential environment that meets certain standards for the needs of a decent, healthy, safe, and comfortable residence, and (22). Facilities are facilities in a residential environment, functioning to support the organization and development of social, cultural and economic life. Regulation of the Minister of Public Works and Housing, Republic of Indonesia number. 38 of 2015 concerning Infrastructure Assistance, Facilities and Public Utilities Article 1: (8). Infrastructure is the basic physical completeness of the residential environment that meets certain standards for the needs of a decent, healthy, safe, and comfortable residence. (9). Facilities are facilities in a residential environment that function to support the organization and development of social, cultural and economic life (10). Public utilities are supporting facilities for residential environmental services. Provision of facilities - facilities needed later in the implementation are also prepared carefully. And no less important is housing construction activities must be able to provide livable housing to consumers. Seeing this, housing development is a potential business for developers to run as follows: 1). Water supply and sanitary sewer disposal, 2). Waste disposal, 3). Electricity, fuel and communication, 4). Security by the police and fire rescue.

According to Soemarno, (2007: 8) Settlement Development, in addition to providing homes for shelter, is to create a healthy living climate, environmentally, economically, socio-culturally, and politically, which guarantees the continuing quality of life for all people, where all people can live more prosperously, have access to basic infrastructure and settlement services that are appropriate and appropriate, and are able to maintain the quality of their environment. In order to achieve this goal, it is necessary to: (1) shift the view from the concept of housing development to the concept of settlement development which emphasizes social, functional and ecological integration; (2) creating a conducive climate so that settler communities can be able to build and maintain their dwellings in order to improve their welfare. Some priority activities are: 1). Housing and Settlement Development, 2). Housing and Settlement Management.

- *Carrying Capacity (Y)*

According to Soemarno (2009: 31) Preservation of environmental functions is a series of efforts to maintain the continuity of environmental carrying capacity and carrying capacity. The ability of the environment to support human life and other creatures is called environmental carrying capacity. Furthermore, in Law No. 32 of 2009 concerning. Environmental Protection and Management, article 1, (7) Environmental carrying capacity is the ability of the environment to support the lives of humans, other living things, and the balance between the two.

The carrying capacity of the environment is essentially the carrying capacity of the natural environment, which is based on plant and animal biomass that can be collected and captured per unit area and time in that area (Otto Soemarwoto 2001: 23) carrying capacity of the environment is the need for human life from the environment can be expressed in terms of area needed to support human life This area to support human life is called an ecological footprint. To find out the level of sustainability of natural resources and the environment, human life needs are then compared with the actual area of productive land. The comparison between the ecological footprint with the actual area of productive land is then calculated as the ratio between available land and required land. Carrying capacity or carrying capacity of the environment implies the ability of a place to support the life of living things optimally in a long period of time. The carrying capacity of the environment can also be interpreted as the ability of the environment to provide living organisms in a prosperous and sustainable way for the inhabitants who inhabit an area.

Regulation of the Minister of Environment Number 09 of 2011 concerning the Guidelines for Strategic Environmental Assessment, General provisions as follows: 20). Carrying capacity of the environment is the ability of the environment to support the lives of humans, other living things, and the balance between them. According to Regulation of the Minister of Environment No. 17 of 2009 concerning Guidelines for Determination of Carrying Capacity; The Environment in the Spatial Planning of the State Minister of the Environment, the carrying capacity of the environment is divided into 2 (two) components, namely the supportive capacity and the assimilative capacity. In this guideline, the study of environmental carrying capacity is limited to the capacity to supply natural resources, especially in relation to land capability and the availability and need for land and water in a space / region. The capacity of natural resources depends on the ability, availability, and needs for land and water, determining the carrying capacity of the environment accordingly.

Carrying capacity of the environment is: the needs of human life from the environment can be expressed in terms of the area required to support human life. environmental carrying capacity in an ecological context is the number of populations or communities that can be supported by the resources and services available in the ecosystem.

C. Population and Sample

According to Sangadji, E. M. and Sopiah, (2010: 185) the population is a region of generalization which consists of subjects or objects with certain qualities and characteristics determined by the researcher, while the sample is part of the number and characteristics possessed by the population. In this study, the population is the total spatial area data of 157.26 Km2, the population of 431,880 people and the occupation density reaches 2,740 people / Km2 and the number of 101 housing locations spread over 11 (Eleven) Districts: Malalayang, Sario, Wanea, Wenang, Tikala, Paal Dua, Mapanget, Singkil, Tuminting, Bunaken and Bunaken Islands. (Central Bureau of Statistics.2019: 88).

The sample is a part of the population studied, the sample taken from the population must be truly representative (representative). namely Location of Geriya Paniki Indah Regional Mapanget District with a total of 40 housing locations, a larger spatial area of 47.76 Km2, and a population of 17 years and older at 40,433 inhabitants. To determine the sample that will be used in research with Probability sampling technique is a sampling technique that provides equal opportunities for each element (member) of the population to be selected as a sample member, with a technique that is Simple random sampling (Sugiyono, 2017: 111).

According to Sugiyono, (2017: 112) To determine the sample size, if the number of subjects is greater than 100 respondents, the number of subjects is 10 - 50%. For this study, a sample of 50% of the population of 50 respondents in the Mapanget Sub-District of Manado City was taken.

D. Data Analysis

➢ *Hypothesis Data Analysis 1*

To analyze the extent of the effect of housing construction (X) of the proper housing plan (X1) and healthy housing infrastructure (X2) simultaneously on the environmental carrying capacity (Y) of Manado City.

For data analysis Hypothesis 1 namely :

a. Multiple Linear Regression Analysis. This analysis is used to find out how much influence the X variables consisting of X1 and X2 simultaneously on the Y variable.

Double linear regression equation (Sugiyono, 2017: 275).

$$\hat{Y}i = a + b1\ X1 + b2\ X2 \quad \ldots\ldots\ldots (1a.1).$$

Information :

Information :	Ŷi	=	Subject in the predicted dependent variable
	X1, 2	=	Subjects on independent variables that have a certain value.
	a	=	
	b1,2		Price Y when price X = 0 (constant price)
			coefficient - regression coefficient

The F statistic tests the significance of regression (Sugiyono,2017 : 286).

$$Fi = \frac{JK_{reg} / k}{JK_{res} / dk} \quad \ldots\ldots\ldots (1a.2).$$

Information :	Fi	=	Multiple regression significance test
	$JKreg$	=	Number of squares - regression squares
	$JKres$	=	Number of squares - squared residue
	Dk	=	Degree of Freedom (n - k - 1)
	k	=	Number of independent variables X

b. Multiple Correlation Analysis. This analysis is used to measure the degree of influence of variables X consisting of X1 and X2 simultaneously on the Y variable.

The coefficient of double determination (Supangat, A. 2010: 327).

$$R^2i = \frac{JK_{reg}}{\sum Yi^2} \quad \ldots\ldots\ldots (1b.1).$$

Information :	R^2i	=	The coefficient of double determination
	JK_{reg}	=	Number of squares - regression squares
	ΣYi^2	=	Total squares - total squares

Statistical t test for multiple coefficients (Sugiyono. 2017 : 231).

$$ti = \frac{bi}{Sai} \quad \ldots\ldots\ldots (1b.2).$$

Information :		=	Multiple correlation coefficient test,
	ti	=	ti = t1 and t2
	bi	=	Standard error coefficient, Sai = Sa1, and Sa2
	Sai		Coefficients - efficiency, b1 and b2

➢ *Hypothesis Data Analysis 2*

To analyze the extent of the effect of housing construction (X) of the plan of decent housing (X1) and healthy housing infrastructure (X2) separately the carrying capacity of the environment (Y) of Manado City.

For data analysis Hypothesis 2 namely :

a. Multiple Linear Regression Analysis. This analysis is used to find out how much influence the X variables consisting of X1 and X2 simultaneously on the Y variable.

Double linear regression equation (Sugiyono, 2017: 275).

$$\hat{Y}i = a + b1\ X1 \quad \ldots\ldots\ldots$$

……… (2a.1).

Information :
Ŷi = Subjects in the predicted dependent variable
X1 = Subjects to independent variables that have certain values.
a = Price Y when price X=0 (Constant Price)
b1 = Regression coefficient

Statistical F independent test (Analysis of Variance / Anava List (Sugiyono. 2017 : 178).

$$Fi = \frac{S^2_{reg}}{S2_{res}}$$

…………..………………….……….......………. (2a.2).

Information :
Fi = independent test
S^2reg = Regression variance
S^2res = Residual variance

b. Partial Correlation Analysis. This analysis is used to measure the magnitude of the effect of each X consisting of X1 if X2 remains, separately to the variable Y.
Partial correlation coefficient (Supangat, A. 2010: 334).

$$ry1.2 = \frac{ry1. - ry2..r1.2.}{\sqrt{(1-r^2y2.)(1-r^21.2.)}}$$

……………..…..….......…….. (2b.1).

Information :
: = Partial correlation coefficient
ry1.2 = ry2 = The coefficient of partial determination
ry1

t statistic partial coefficient test (Supangat, A. 2010 : 342).

$$ti = \frac{ry1.2\sqrt{n-2}}{\sqrt{1-r^2y1.2}}$$

…………..……….……………........…..…... (2b.2).

Information :
ti = test the partial correlation coefficient, ti = t1 and t2
= Standard error coefficient, Sai = Sa1, and Sa2
ry1.2 = Partial correlation coefficient

III. RESULTS AND DISCUSSION

A. Regional Spatial Description

Spatial area area data of Manado City is 157.26 Km2, population is 431,880 people, occupation density reaches 2,740 people / Km2 and 101 Residential locations are spread across 11 (Eleven) Districts: Malalayang, Sario, Wanea, Wenang, Tikala , Paal Dua, Mapanget, Singkil, Tuminting, Bunaken and Bunaken Kepulauan (Central Bureau of Statistics.2019: 88).

Topography is a detailed study or decomposition of the state of the earth in an area, such as the Location of Latitude and Longitude, Slope, Altitude, and Contour of the Land, Climate is the average state of weather in an area in a relatively long period of time. Some elements that can be used to determine the climate of an area are air temperature, humidity, solar radiation, rainfall and wind. Air temperature is degrees hot and cold air in the atmosphere (Central Statistics Agency.2019: 3).

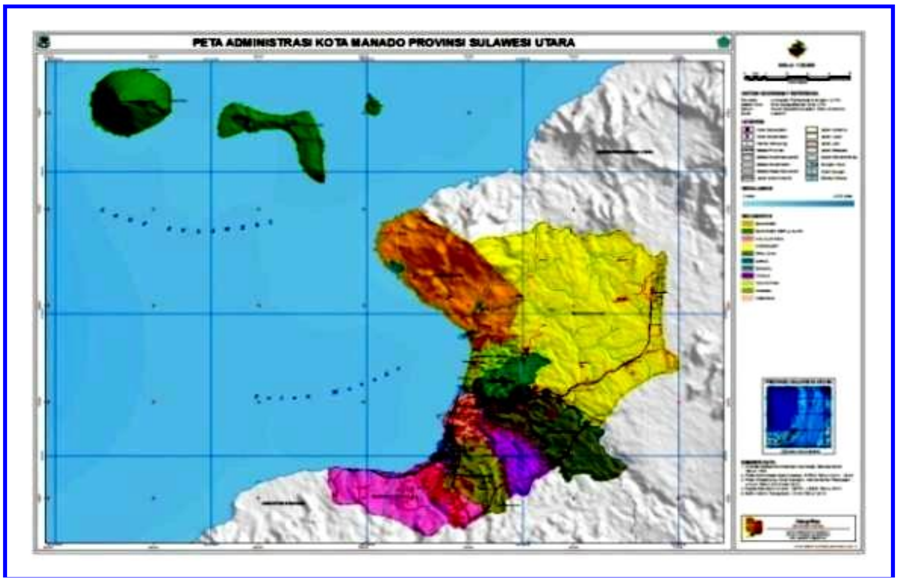

Fig 1:- Spatial Map the City of Manado
Source: Manado City in Figures 2019

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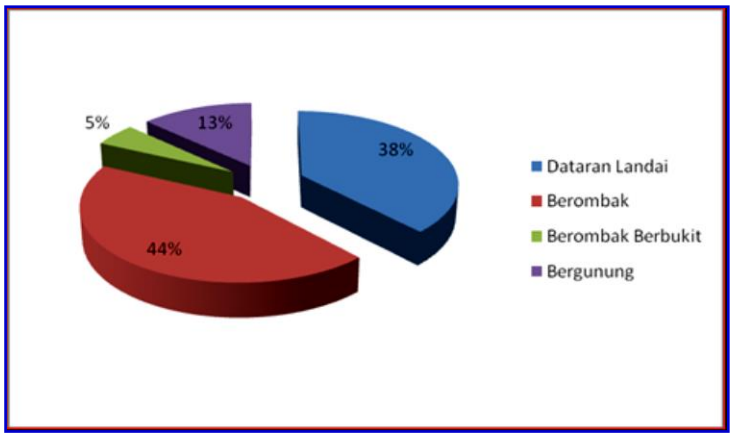

Fig 2:- Topography of City of Manado
Source: Manado City in Figures 2019

B. Location of Housing Development

In developing the Manado City development based on disaster mitigation as an effort to improve the safety and comfort of life with good zoning arrangements. Housing development requires extensive land and the location must be suitable for residence. The selection of land to be developed must be in a strategic area in accordance with the objectives of housing development. The location of housing development requires a large area of land namely Geriya Paniki Indah Housing Area Mapanget District with a total of 40 housing locations, spatial area is greater by 47.76 Km2 (Central Statistics Agency.2019: 38).

Fig 3:- Housing Location Griya Paniki Indah City of Manado
Source: Housing Develover Geriya Paniki Indah City of Manado, 2019

The location of housing construction requires a large area of land and the location must be suitable for residence. The selection of land to be developed must be in a strategic area in accordance with the objectives of the housing development. Provision of facilities needed later in implementation is also prepared carefully. And no less important is housing construction activities must be able to provide livable housing to consumers. Seeing this, housing development is a potential business for developers to run.

Urip Santoso (2013: 81) states that housing development and its facilities and infrastructure need to get priority considering that residence is one of the basic needs. The existence of limited land and land requirements that are increasing in line with population growth and accompanying socio-economic activities, have an impact on the increasingly diverse functions in urban areas. Competition occurs to get the most profitable land use so that it can encourage the tendency of changes in urban land use and trigger investment competition in the property sector. This can open up development opportunities in the property business sector that will be carried out by developers.

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Fig 4:- Housing Plan Griya Paniki Indah City of Manado
Source: Housing Develover Geriya Paniki Indah City of Manado, 2019

Fig 5:- Housing Model Griya Paniki Indah City of Manado
Source: Housing Develover Geriya Paniki Indah City of Manado, 2019

C. Natural Resources and the Environment

To determine the level of sustainability of natural resources and the environment, the needs of human life are then compared with the actual area of productive land. The comparison between the ecological footprint with the actual area of productive land is then calculated as the ratio between available land and required land. Carrying capacity or carrying capacity of the environment implies the ability of a place to support the life of living things optimally in a long period of time. The carrying capacity of the environment can also be interpreted as the ability of the environment to provide living organisms in a prosperous and sustainable way for the inhabitants who inhabit an area.

The condition of the environmental capacity with all the diversity of interactions that exist is able to balance the situation. But it is also possible, such conditions can be changed by human intervention with all the activities that meet the needs that sometimes exceed the limits of the environment naturally can take place because of several things, namely components-balance, energy transfer (energy flow), and biogeochemical cycles can take place. Environmental balance can be disrupted if there is a change in the form of reduced function of the components / loss of some of the components that are present causing a break in the chain in the ecosystem.

Manado City Regional Regulation Number 01 of 2014 concerning Manado City Regional Planning for 2014 - 2034 Article 1, (36). Ecosystem is the order of environmental elements which constitutes a unified, comprehensive and mutually influential way in shaping environmental balance, stability and productivity. (40). Environmental Capability is the ability of the environment to absorb substances, energy and / or other components that enter or are incorporated into it.

Fig 6:- Environmental Capability
Source: Environmental Fund Management Agency, 2019

D. Hypothesis Analysis Results 1

According to field observations and preliminary surveys, it is assumed that the influence of housing construction (X) from the plan of decent housing (X1) and healthy housing infrastructure (X2) simultaneously on the environmental carrying capacity (Y) of Manado City (Hypothesis 1). The results of the multiple linear regression analysis regarding the relationship between research variables are stated in the following equation :

$\hat{Y}$ = 0,082+ 0,570 X1 + 0,466 X2.

No.	Analysis Variables X and Y	Hypothesis Analysis Results 1		
1.	Double Linear Regression	Koef. a	Koef. b	Fhit
	Environmental carrying capacity (Y) Proper housing plan (X1) Healthy housing infrastructure (X2)	0,082	0,570 0,466	7,99*
2.	Double Correlation	R*i*	R*i*^{2}	t hit
	Environmental carrying capacity (Y) Proper housing plan (X1) Healthy housing infrastructure (X2)	0,8258	0,6820	2,28* 1,97

Table 1:- Results of Housing Development Analysis (X)
Towards Environmental Carrying Capacity (Y)
Source: processed data, 2019

Information :
1. F_{daf} = 0,05 (2,27) = 3,35
2. t_{daf} = (0,975) = 2,05
* = Relationships are Very Significant

The results of the analysis of hypothesis 1 data, with the multiple linear regression analysis of table 1, feasible housing plan (X1) and healthy housing infrastructure (X2) in housing construction (X) simultaneously have a very significant effect on the carrying capacity of the environment (Y) of Manado City. This conformity is proven by Statistics F multiple independent tests: F1hit = 7.99> Fdaf = 3.35 table 1, H1 hypothesis is accepted at the real level α = 0.05 or 5% giving the test results a very significant effect.

The results of the multiple correlation analysis of table 1, the coefficient of double determination: $R1^2$ = 0.6820 or 68.20 percent. This means that 68.20 percent of Manado City's environmental carrying capacity variation (Y) can be explained simultaneously by the proper housing plan (X1) and healthy housing infrastructure (X2) in housing construction (X). Conclusion of housing construction from the plan of proper housing and healthy housing infrastructure simultaneously has a very significant effect on the carrying capacity of the city of Manado at 68.20 percent.

E. Hypothesis Analysis Results 2

To find out the level of significance of the influence of housing construction (X) from the plan of decent housing (X1) and healthy housing infrastructure (X2) separately on the carrying capacity of the environment (Y) of Manado City. (Hypothesis 2.). For clarity, the significance of each influence in housing construction (X) is explained below. Hypothesis 2 data analysis results, as follows :

No.	Analysis Variables X and Y	Hypothesis Analysis Results 2		
1.	Simple Linear Regression	Koef. a	Koef. b	Fhit
	Environmental carrying capacity (Y) Proper housing plan (X1) Healthy housing infrastructure (X2)	4,757 4,467	0,494 0,470	0,30* 0,28*
2.	Partial Correlation	ry*i*	$ry i^2$	t hit
	Environmental carrying capacity (Y) Proper housing plan (X1) Healthy housing infrastructure (X2)	0,5114 0,4777	0,2615 0,2282	3,15* 2,87*

Table 2:- Results of Housing Development Analysis (X)
Towards Environmental Carrying Capacity (Y)
Source: processed data, 2019

Information :
1. F_{daf} = 0,95 (1,28) = 0,24
2. t_{daf} = (0,975) = 2,05
* = Relationships are Very Significant

➢ *Proper housing plan (X1)*

The proper housing plan (X1) in housing construction (X) influences the environmental carrying capacity (Y) of Manado City. The results of simple linear regression analysis regarding the relationship between research variables are stated in the following equation :

$$\hat{Y} = 4{,}757 + 0{,}494\ X1$$

The results of the simple linear regression analysis of table 2, show the results of the test of the significance of a simple linear regression which states that a feasible housing plan (X1) in housing development (X) has a very significant effect on the carrying capacity of the environment (Y) of Manado City. This conformity is proven by the independent F test statistic: F21hit = 0.30 > Fdaf = 0.24 H1 hypothesis is accepted at the real level α = 0.05 or 5% giving the test results a very significant effect. The results of the partial correlation analysis of table 2. Partial coefficient of determination: $r^2y1.1$ = 0.2615 or 26.15 percent. This means that 26.15 percent of Manado City's environmental carrying capacity (Y) can be explained by the decent housing plan (X1) in housing construction (X). The conclusion of housing development from a proper housing plan has a significant effect on the carrying capacity of the city of Manado by 26.15 percent.

Eko Budihardjo and Djoko Sujarto (2005: 201) state that spatial planning and the environment have a very broad meaning, but at the same time also often have a narrow connotation and are limited to mere physical planning and design. Urban and regional planning that emphasizes physical meaning, and which nourishes mankind with all its uniqueness, turns out to have been widely criticized. This criticism began to emerge lately, because of the spatial and urban environment which is basically planned to meet the comfort of human life, but in fact sometimes appears that damaging effects of human life are comfortable and harmonious.

➢ *Healthy housing infrastructure (X2)*

Healthy housing infrastructure (X2) in housing construction (X) affects environmental carrying capacity (Y) of Manado City. The results of simple linear regression analysis regarding the relationship between research variables are stated in the following equation :

$$\hat{Y} = 4{,}467 + 0{,}470\ X2$$

The results of the simple linear regression analysis table 2, show the results of the simple linear regression significance test stated that the infrastructure of healthy housing (X2) in housing construction (X) significantly influences the carrying capacity of the environment (Y) of Manado City. This conformity is proven by the F independent test statistic: F12hit = 0.28 > Fdaf = 0.24 H1 hypothesis is accepted at the real level α = 0.05 or 5% giving the test results a significant effect. The results of the partial correlation analysis of table 2. Partial coefficient of determination: $r^2y1.2$ = 0.2282 or 22.82 percent. This means that 22.82 percent of the variation in the environmental carrying capacity (Y) of Manado City can be explained by the healthy housing infrastructure (X2) in housing construction (X). The conclusion of housing construction from healthy housing infrastructure has a significant effect on the carrying capacity of the city of Manado by 22.82 percent.

The increasing number of urban population is a burden on the environment both the physical environment and the socio-cultural and aesthetic environment. By considering all these constraints, the development managers both government and private, are expected to develop and

implement an integrated work mechanism and the participation of the public and law enforcement agencies are urged to participate in managing urban development, especially those with environmental insight. Management of city development with an environmental perspective aims to improve the quality of human beings through improving the quality of the environment both physically and socially (Budi Raharjo 2004: 12).

IV. CONCLUSION

Based on the results and discussion above, the findings are obtained, namely: housing development from a proper housing plan and healthy housing infrastructure simultaneously to the environmental carrying capacity of the City of Manado. Because that 68.20 percent of the variations in the carrying capacity of the city of Manado can be explained by the plan of adequate housing and infrastructure of healthy housing simultaneously in housing construction.

Separately, the housing development from the proper housing plan has a very significant effect on the environmental carrying capacity of the City of Manado. Because only 26.15 percent of the variations in the carrying capacity of the city of Manado can be explained by the plan for decent housing in housing development. Housing development from healthy housing infrastructure has a significant effect on the carrying capacity of the city of Manado. Because only 22.82 percent of the variations in the carrying capacity of the city of Manado can be explained by healthy housing infrastructure in housing construction.

The city of Manado is one of the cities in Indonesia which is located in a coastal area with all its settlement activities, growth and development development in large part towards the construction of housing that provides simple, medium and luxury homes. So housing is a house where the entire process of development, use and demolition tries not to disturb the balance of nature, even if it is possible to improve the quality of the environment. That efforts for the comfort and health of residents must be achieved with a technical approach that does not damage nature. In other words, the house building must have an orientation towards the site and the environment.

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