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Perception Models and Alternative Strategies for the Changing of Land Use Affected Sustainability Livelihood and Policy in the Regional Development of Kepanjen District Malang

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ABSTRACT: *Land use in a developing region will not be separated from any form of human intervention to the land in order to meet the needs of their life. Besides, in the usage of land on the development area will indirectly affect the mindset of the community or the growth of people living in the region. Land-use planning is a planning process for land use and land use alternatives by considering development factors, whether physical, social, cultural, or economic. Land use planning has the objective to make the determination of the choices and application of one of the best land use pattern and in accordance with the existing condition, so it is expected to reach a certain target. Land use planning in each developing region will involve the government technically in a spatial planning in the form of Spatial Planning (RTRW). Spatial planning is necessary to achieve harmony and balance in the utilization of existing potentials to create an efficient and effective environment. In addition, with the creation of an efficient and effective environment will cause harmonious relationship between human and the environment. Based on the development of the region, the purpose of this study is to know the relationship between the variables of population policy, transportation and governance influenced by variable Sustainability Livelihood (SL) on land use change and designing policy strategies that are in line with regulation in the development area. The research method used is quantitative survey exploratory method with Structural Equation Modeling (SEM) analysis and SWOT analysis conducted on the respondents in Kepanjen District, Malang Regency. Based on the result of research, it is found the relevance of Sustainability Livelihood Approach (SLA), Population, Transportation and Land Use on site. However, the government policy is not related to land use change in the research location. This explains that government policy has no significant effect on land use change. Based on the results of SWOT analysis, Kepanjen area development is located in quadrant I, which indicates that it is progressive (aggressive) which means that sustainable development is done but must pay attention to the environmental aspect and the carrying capacity of the community.*
KEYWORDS-*Sustainability Livelihood, Population, Transportation, Land Use, Government Policy, Structural Equation Modeling (SEM) and SWOT.*

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I INTRODUCTION

The development of an area is often accompanied and in line with human growth. Therefore, the development continues to be done in order to meet the needs of people who are increasing the number of population. Currently, development that has been encouraged by various individuals and institutions that exist is still not regular and still not in accordance with the function of the region and the need for existing resources. Seeing the growing population increase every year requires a development that is appropriate to the needs that exist today. Spatial planning is necessary to achieve harmony and balance in the utilization of existing potentials to create an efficient and effective environment. In addition, the creation of an efficient and effective environment will create harmonious relationship between human and the environment.

Development in the area aims to improve the living standards and welfare of the people in the region, through the development of a harmonious and integrated both between sectors and between sectoral

developments. With the existence of efficient and effective regional development planning, it will lead to the achievement of independent community, and the independence of the region itself is equal. With the formulation of plans that have undergone many developments, it is expected that in the future can be used as a reference in development as well as a common ground for all parties concerned. The impacts of urban change and development are triggered by population growth, housing developments, development of trade and services sectors. The existence of urban development both external and internal will greatly affect the activity, intensity and scale of space to be developed and planned later. Development located in the region aims to improve the lives and welfare of the people in the region, through the development of a harmonious and integrated both between sectors and between sectoral developments. With the existence of efficient and effective regional development planning, it will lead to the achievement of independent community, and self-reliance of the region itself evenly throughout the country.

Kepanjen is a district which is also the administrative center of Malang Regency, East Java Province, Indonesia. Kepanjen district is located 20 km of south Malang City. With the publication of Government Regulation No. 18 of 2008 concerning Approval of the Transfer of Capital of Malang Regency to Kepanjen district is the beginning of the new capital, Kepanjen City is declared to be the capital of Malang Regency, which is currently part of Malang Regency government that still in Malang City. This move will affect the function of Kepanjen Districts. In addition, there will be changes and land-use determination in line with the displacement. This move requires the readiness of supporting infrastructure, including road infrastructure. As transportation infrastructure that plays an important role in the transportation sector, especially for the distribution of goods and services, the availability of roads and reliability conditions will positively affect the economic sector, government and society. In addition, Kepanjen is known as the main satellite buffer of Malang Regency, which is included in the area of Malang Raya. Determination of Kepanjen District as the capital city of Malang Regency has changed as well as become the center of new movement in the area of Malang Regency. Along with the development of movement towards Kepanjen district as the center of government, also expands the land use in the area of cultivation Kepanjen District and surrounding areas. For the area around Kepanjen district, these developments, at least visible along the main corridor of movement from and to the Kepanjen District. In addition to Kepanjen district, the development area of Kepanjen is directly adjacent to the development area of Malang City Circle. Currently, experiencing the trend of housing development is very rapid, that indirectly will affect, so secondary development occurs.

II MATERIAL METHOD

1.1 Literature Review

Rustiadi et al., (2009) suggest that land use and land cover may have the same meaning for certain things, but actually contain different emphases. Land use concerns the activity of land use by humans, while land cover (land cover) is more physical nuanced. Lillesand and Kiefer (1990), stated that knowledge of land use and land cover is important for various planning and management activities related to the earth's surface. Closure of land associated with the type of appearance that is on the surface of the earth, whereas land use is related to human activities on a particular land. Arsyad (2010) land use is defined as any form of intervention (intervention) of man to the land in order to meet the needs of his life both material and spiritual.

Land is the surface of the earth where various activities occur and is a limited natural resource, where its use requires the provision, provision and appropriation of plans for the purposes of use for the welfare of the community (Sugandhy, 1998). Meanwhile, according to Cooke (1983), the land is the overall ability of the mainland and all the symptoms below the surface that concerns with its utilization for humans. According to Boedi Harsono in Soemadi (1999), the definition of land / land under the Basic Agrarian Law is the surface of the earth which in its use includes the lower body parts of the earth and the space above it in accordance with its intended use. Accessibility changes will determine the change in land value, and this change will affect the use of the land. If a land-use change of travel needs to transport, the value of land accessibility facilities really happens, then the rate of trip awakening will change and will changes throughout the cycle. it should be noted that this cycle is a simplification of the actual reality, and market power is not shown. Nevertheless this cycle illustrates the fundamental relationship between transport and land use (Khisty & Lall, 2005).

Generally and use in a city is a certain shape and its developmental pattern can be estimated. Decisions in urban development usually developing freely, but are pursued in accordance with land-use planning. Economic motive is the main motive in the formation of land use structure of a city with the emergence of strategic business centers. In addition to business motives there are also political motives, the physical form of the city, such as topography, drainage. Although the structure of the city seems irregular, but if carefully viewed, have the regularity of certain patterns. Physical buildings form the city's internal zones. Existing urban structural theories are used to examine land use forms that typically consist land use for housing, business, industry, agriculture and services (Koestoer, 2001).

The concept of livelihood is often used in writing about poverty and rural development. Livelihood is defined as the ability of the assets and activities necessary to live life in a household. Life is not something temporary, but it must be strong and sustainable to the end. Changes to livelihoods also affect the organizational structure and institutional processes that have mediating abilities to then correlate with livelihood strategies (intensification and extensification of agriculture, diversification and migration) and affect the sustainability of livelihoods. This framework can be applied on a variety of different scales-whether individuals, households, to kinship organizations, villages, regions or even countries, sustainable livelihoods are rated at different levels. Such as the interaction analysis between the level of impact on livelihood, both positive and negative. Livelihood strategies are closely related to the next life, how one develops the ability to adapt to the environment and take advantage of every opportunity available, fulfilling household needs by balancing between resources/capital possessed by the level of need. Although economic aspects are not the only measure, but generally household economic resilience greatly affects the sustainability of household livelihoods. Elements in Sustainable Livelihood are human capital, financial capital, natural capital, physical capital and social capital.

The macro transport system consists of several micro systems, namely; (a) system of activities; (b) network system; (c) the movement system; and (d) institutional systems. Each system is interconnected with each other. Transportation serves as a supporting factor and stimulus development (The Promoting Sector) and the service (The Servicing Sector) for economic development. Construction of a land area will cause traffic that will affect land use patterns. The interaction between land use and transportation is affected by regulations and policies. In the long run, the development of transportation infrastructure or the provision of transportation with modern technology will affect the shape and pattern of land use as a result of increased accessibility (Tamin, 2000).In the development of this increasingly complex area especially the development of urban areas where the city has a variety of aspects and implications more complicated than the district/ village. The active participation of the community will further foster togetherness so as to accelerate the welfare improvement that is fair and prosperous. This is considering that development is a continuous effort in achieving the objective of improving the standard of living, so as something that is comprehensive and complex, it is impossible to only be carried out by the local government, but the whole community needs to be involved and given the awareness and opportunity to participate in development, so that participation will be able to develop actively and dynamically.

1.2 Research Location

This research was conducted in Kepanjen District of Malang Regency by taking focus area of middle area of city which is area of administration of local government. The location of the study was deliberately taken from 4 (four) urban villages, namely Kepanjen, Ardirejo, Cempokomulyo, and Penarukan villages. This location was chosen because these four areas contained a development plan and constituted the administrative area of the local government. The number of people affected by land use change is also quite a lot. In addition, the location is chosen based on the ease of access into the area which is the area of local government administration. Geographically, the location of the research can be seen in Figure 1.

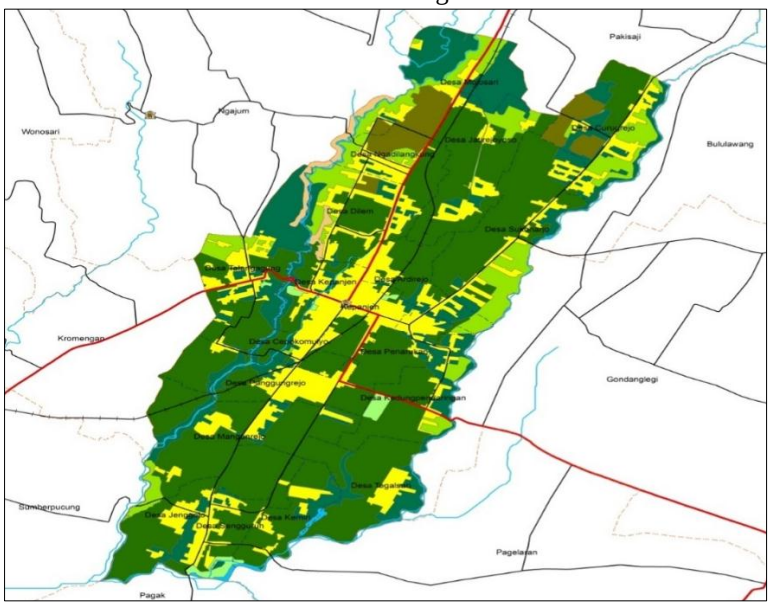

Figure 1. Research Location Map

1.3 Collecting Data Method

The research approach used in this research is exploratory survey analysis. According to Nazir (2005), explains that explorative survey methods are often used to reveal facts and identify problems and justify ongoing implementation. The samples used in this study were obtained using Slovin formula (Setiawan, 2007). Respondents in the study also involved some supporting informants such as Malang journalists, NGO's, Regent, Vice Regent, Government officials, Entrepreneurs and village community leaders. The measurement technique of these research variables using questionnaires as an instrument in collecting data from respondents, because the method of data collection in this study is survey. The answers obtained with the research instrument were scored. The questionnaire in this study used five levels, i.e. strongly disagree, disagree, less disagree or neutral, agree, and strongly agree. Likert-scale usage can generate data categorized in interval scale (now, 2003). The score of answers to the questionnaire: Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5.

1.4 Data Analysis

To analyze the relationship between Sustainability Livelihood Approach, Population, Transportation, Government Policy and Land Use is used quantitative method with Structural Equation Modeling (SEM) analysis. Structural Equation Modeling (SEM) is a statistical technique that performs a relatively complex and simultaneously. The relationship can be constructed between one or several variables depending on one or more independent variables and can form of a factor or construction, constructed from several indicator variables. While in obtaining alternative strategies, SWOT analysis is classified based on the identification of strengths, weaknesses, opportunities and threats arranged in the form of internal and external matrices. After the formation of internal and external matrix, then scoring based on the scale specified to form the results of feasibility based on 4 quadrants.

III RESULT AND DISCUSSION

To find out whether the hypothetical model is supported by empirical data or not, it is necessary to test the goodness of fit overall model. According to Arbuckle and Wothke, in Solimun (2009), the best criterion used as an indication of model goodness is the value of Chi Square / DF less than 2, and the RMSEA is below 0.08. In this study, the values of CMIN / DF and RMSEA have met the cut off value. Therefore the SEM model in this study gets the values of the Goodness of Fit, some have not met the cut-off, and thus the model formed can be said marginal. Then, some test results are presented in the table below the following:

Table 1. Test Result of Goodness of Fit Overall Model Initial Stage

Goodness of Fit index Y	*Cut off Value*	Analysis Result	Model Evaluation
χ^2 *- chi quare*	<dfdengan α = 0.05	651.592	Marginal Models
Sig.	≥ 0.05	0.000	Marginal Models
RMSEA	≤ 0.08	0.109	Marginal Models
RMR	≤ 0.10	0.037	Good Models
GFI	≥ 0.90	0.802	Marginal Models
AGFI	≥ 0.90	0.740	Marginal Models
CMIN/ DF	≤ 2.00	4.072	Marginal Models
TLI	≥ 0.90	0.831	Marginal Models
CFI	≥ 0.90	0.858	Marginal Models

Source : Data Processed, 2017

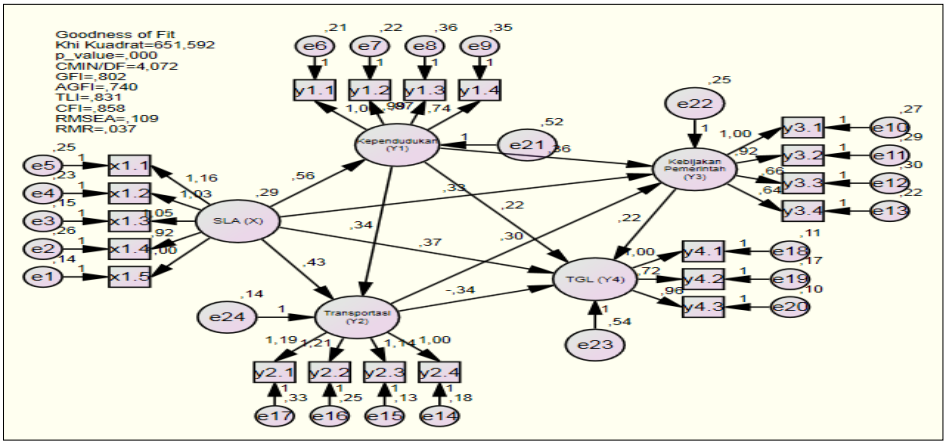

Figure 2. Diagram of Analysis Result Way of SEM

Based on the results of the study revealed that the testing of research hypotheses conducted with t test on each path of direct influence partially. The results of the complete analysis, contained in the results of SEM analysis. A summary of the results of hypothesis testing is given in the following table below:

Table 2. Hypothesis Testing Results

Independent Variable		DependenVariable	Coeffisient of *Direct Effect* Way		
			Std'ize	*P-value*	Info
H_1	*Sustainalibilty Livelihood Approach*	Population	0.387	0.000	Sig***
H_2	*Sustainalibilty Livelihood Approach*	Transportation	0.419	0.000	Sig***
H_3	Population	Transportation	0.475	0.000	Sig***
H_4	*Sustainability Livelihood Approach*	Government Policy	0.244	0.001	Sig**
H_5	Population	Government Policy	0.392	0.000	Sig***
H_6	Transportation	Government Policy	0.228	0.015	Sig*
H_7	*Sustainability Livelihood Approach*	Land Use	0.245	0.007	Sig**
H_8	Population	Land Use	0.212	0.036	Sig*
H_9	Transportation	Land Use	-0.233	0.036	Sig*
H_{10}	Government Policy	Land Use	0.197	0.066	Non Sig

Source : Data Processed, 2017

Based on calculation result by using approach of Structural Equation Modeling (SEM) obtained the result of hypothesis test as presented below:

Hypothesis 1. Sustainability Livelihood Approach has a significant effect on Population is accepted. The coefficient of path standardize = 0.387 with p-value = 0.000 was significant. This indicates that the significant positive effect of Livelihood Approach Sustainability on Population. This illustrates that the higher perceived height or good Sustainability Livelihood Approach then makes the Population increasing.

Hypothesis 2. Sustainability Livelihood Approach has significant effect on Transportation is acceptable. The coefficient of Standardize line = 0.419 with p-value = 0.000 was significant. This illustrates that a significant positive effect of Livelihood Approach to Sustainability Transportation. This illustrates that the more high perceived or good Sustainability Livelihood Approach then makes the Transport is increasing.

Hypothesis 3. Population has a significant effect on Transportation is acceptable. The coefficient of the Standardize line = 0.475 with p-value = 0.000 was significant. This illustrates that a significant positive effect of Livelihood Approach to Sustainability Transportation. This illustrates that the more perceived high or good Sustainability Livelihood Approach then makes the Transport is increasing.

Hypothesis 4. Sustainability of Livelihood Approach has significant effect on Government Policy is accepted. The coefficient of Standardize line = 0.244 with p-value = 0.001 was significant. This illustrates that a significant positive effect of the Livelihood Approach Sustainability on Government Policy. This illustrates that the increasingly perceived high or good Sustainability Livelihood Approach then make Government Policy increasing.

Hypothesis 5. Population has significant influence with Government policy is accepted. The coefficient of the Standardize line = 0.392 with p-value 0.000, apparently Significant. This illustrates that a significant positive effect of Population on Government Policy. This shows that the better the population will be followed by the increasing Government Policy.

Hypothesis 6. Transportation has significant influence with Government policy is accepted. Standardize Coefficient Line = 0.228 with p-value 0.015, apparently Significant. This illustrates that a positive significant effect of Transportation on Government Policy. This indicates that the better Transportation will be followed by increasing Government Policy.

Hypothesis 7. Sustainability of Livelihood Approach has significant effect on Land Use is acceptable. Standardize Coefficient Line = 0.245 with p-value = 0.007 was significant. This illustrates that a significant positive effect of the Livelihood Approach Sustainability on Land Use. This illustrates that the more perceived high or good Sustainability Livelihood Approach then make Land Use Land is increasing.

Hypothesis 8. Population has significant effect with Land Use is acceptable. Coefficient Line Standardize = 0.212 with p-value 0.036, apparently Significant. This illustrates that a significant positive effect of Population on Land Use. This indicates that the better the Population will be followed by the increasing Land Use.

Hypothesis 9. Transportation significantly affect with Land Use is acceptable. Standardise Coefficient Line = -0.233 with p-value 0.036, apparently Significant. This illustrates that a significant negative effect of Transportation on Land Use. This indicates that the better Transportation will be followed by the decreasing of Land Use.

Hypothesis 10. Government policy has significant effect on Land Use is rejected. The coefficient of Standardize line = 0.197 with p-value 0.066, was not significant. This illustrates that there is no significant influence on the Government's Policy on Land Use.

Based on the results obtained, illustrates that the attachment between the four variables, especially on land use change in the research location, is not dependent on government policy but rather toward the influence of the community which is reflected by the existence of Sustainability Livelihood consisting of several capital that reflects the sustainable community such as capital human, natural capital, financial capital, physical capital and social capital. In addition, land use change is also due to increased population and transportation. However, there is a possibility that the existence of government policy is needed by the society in the area that has changed the land use. Although government policy does not affect land use change in a region, but with government policies the impact of land use changes can be controlled so as to create sustainable development. Therefore, the change and development of land use in the area of Kepanjen District is inseparable from the government policy that makes Kepanjen District as the Capital of Malang. In addition, with the policy will trigger public capital intervention listed in the Sustainability Livelihood Approach. SEM Model is formed as follows:

Structural Models:

- Population = 0.387 SLA + 0.521
- Transportation = 0.419 SLA + 0.475 Population + 0.137
- Govenrment Policy = 0.392 Population + 0.228 Transportation + 0.244 SLA + 0.248
- **Land Use** = 0.245 **SLA** + 0.212 **Population** – 0.233 **Transportation** + 0.541

Table 3. Matrix of Internal Factor Analysis (IFA)

No.	Indicator	Weight	Rating	Score
	I. Strenght			
1.	Based on the calculation using quantitative approach using SEM, land use change is needed in developing the administrative area of district capital influenced by Sustainability Livelihood Approach, Population and Transportation.	0.42	4	1.68
2.	Human resources are available and sufficient in every vilage	0.25	3	0.50
3.	Areas that are potentially very large to be developed in quantity and quality into advanced areas	0.33	2	0.66
Number of Strenght Scores		1.00		2.84
	II. Weakness			
1.	Government policy has little role in shaping a conscious society in advancing its region	0.42	-3	-1.26
2.	Uncontrolled transportation accessibility	0.25	-1	-0.25
3.	Gap between the population is still relatively high	0.33	-2	-0.66
Number of weakness scores		1.00		-2.17
Total (Strenght + Weakness)		0.67		

Information : Ratings are determined on the following scale:

Rating:

Strenght

4 very great strenght,
3 great strenght,
2 average strenght,
1 low strenght,

Weakness

-1 low weakness,
-2 average weakness,
-3 great weakness,
-4 very great weakness.

Table 4. Matrix of *External Factor Analysis* (EFA)

No.	Indicator	Weight	Rating	Score
	III. Opportunity			
1.	Kepanjen District has potential to be a good developing region in nature resources as well as human resources.	0.32	4	1.28
2.	The society in the region have desire to develop their region	0.24	2	0.48
3.	Government has structural policy in couples years of development	0.24	3	0.72
4.	The large of land are available for development and can be optimalized	0.20	1	0.20
The Number of Opportunity Score		1.00		2.68
	IV. Threat			
1.	There is potential of pollution to the waters through house waste, farming, and ect	0.42	-3	-1.26
2.	There is potential of pollution to the air through the increasing of transport and factory.	0.25	-1	-0.25
3.	Lack of inter-governmental coordination with local community leaders in developing Kepanjen area	0.33	-2	-0.66
The Number of Treat Score		1.00		-2.17
Total (Opportunity + Threat)		0.51		

Information: Ratings are determined on the following scale:
Rating:
Opportunity
4 very great opportunity,
3 great opportunity,
2 average opportunity,
1 low opportunity,

Threat
-1 low threat,
-2 average threat,
-3 great threat,
-4 very great threat.

Based on the SWOT quadrant matrix in Figure above can be explained that the position of Kepanjen district is in quadrant I. This position indicates that land use change (marked with blue box) is in a strong position and has a chance to be developed. The strategy recommendation is progressive (aggressive), meaning that land use changes are in good condition so that it is possible to continue to be done in order to improve development and especially sustainable development based on the quality of human resources. Based on the matrix, can be compiled four main strategies of SO, WO, ST and WT in the following table.

Table 5. Alternative Strategy

1. **SO Strategy (*Strengths and Opportunities*)**	
1.1	Local governments should immediately realize sustainable development.
1.2	The government of the relevant agencies should pay attention to the aspirations conveyed by the community and suppress the growth of vehicles.
1.3	The government of the relevant agencies should facilitate the people who have potential in developing their business.
2. **ST Strategy (*Strengths and Threats*)**	
2.1	Provide rewards for people who have awareness in advancing the region.
2.2	Policies on access to transport should be increased every year.
2.3	Reduce emissions in areas potentially exposed to large scale clearing by preventing burning and preventing forest conversion.
3. **WO Strategy (*Weakness and Opportunities*)**	
3.1	The government needs to make priority which focuses the work of the institution on the spatial planning sector.
3.2	Encourage the government to establish monitoring and evaluation procedures related to low-emission development planning.
3.3	The government needs to calculate the funding needs compared to potential future emissions reductions.
3.4	Encouraging the government to play a role in the community engagement process is carried out in all processes from the planning, implementation to monitoring and evaluation processes.
4. **WT Strategy (*Weakness and Threats*)**	
4.1	Encourage the Community and Village Empowerment Bodies to provide training and quality improvement to the community.
4.2	Encourage people to apply the use of any environmentally friendly materials for sustainable development.
4.3	Conduct careful regional development planning so that the development process takes into consideration regional capacity to minimize physical and social impacts

IV CONCLUSSION

Based on the results of the study above, it can be concluded that Sustainability Livelihood Approach which consists of human capital, natural capital, physical capital, financial capital, and social capital become one of the benchmarks of successful development of land use aimed at the development of Kepanjen Districts. In addition to providing increased human development, the development of land use also pay attention to the environmental aspects affected by the development of Kepanjen Districts itself.In addition, land use change is also influenced by the increase in transportation and population so that the government will provide a policy to facilitate the accessibility of the population by building roads and infrastructure facilities in the vicinity. The existence of the government's policy role does not affect the changes of land use in a region but is needed so that sustainable development can be done well so that negative impacts can be minimized.

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