ANALYSIS AND STRATEGY OF LAND USE FOR SETTLEMENT AT WATERSHED (DAS) BRANTAS OF MALANG CITY

UNDERGRADUATE THESIS

Submitted to be examined for getting undergraduate degree at Faculty of Administrative Science University of Brawijaya

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FACULTY OF ADMINISTRATIVE SCIENCE

PUBLIC ADMINISTRATION DEPARTMENT

MALANG

2014

"TIME NEVER BACK SO DON'T MISS IT,
THERE ISN'T OTHER CHANCE TO REACH YOUR DREAM TWICE,
NOW IS THE TIME TO TAKE ACTION"

(Lina Maesari Agustina)

CERTIFICATE OF APPROVAL

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Day	: Tuesday
Date	: July1st, 2014
Time	: 09.00 am
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Title	:Analysis and Strategy of Land Use for Settlement at Watershed (DAS) Brantas of Malang City

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SUMMARY

Lina Maesari Agustina, 2014, Thesis Title : **ANALYSIS AND STRATEGY OF LAND USE FOR SETTLEMENT AT WATERSHED (DAS) BRANTAS OF MALANG CITY.** Supervisors: Prof. Dr. Abdul Hakim, M.Si and Dr. Imam Hanafi, M.Si. pgs 147+xiv

The scope of public administration includes policy, organization, management, moral and ethic, environmental and accountability(Keban,2004:10).According to Winarno (2007:17) view the policy as a direction of action proposed by person, group or government in a given environment providing obstacles and opportunities in order to achieve a goal or realize a goal or a purpose.The development was happen at every aspect of life, it wasn't different with the development that happen in the cities like Malang City. Malang City had vision and mission and once is as the education area. The consequent is the rapidly of development at Malang City. The development was affected at the increasing of urbanization and next step was also affected at the housing and settlement problems.Indirectly, was interpreted that the development in the urban area stimulated to the thriven of illegal settlement around the watershed (DAS).The land use changing become settlement area giving affects to decreasing of land use that functioned for forest and farming. In the term of arrange the land use with the land condition was need the strategy to conduct the policy that suitable with the environment.

Thus research come up with two major problems, firstly related to review and evaluation the irregularities possibility in the spatial utilization at watershed with the spatial planning. Secondly, related to formulate strategic direction in spatial planning. The research use quantitative approach with description method. This research was conducted to determine the exact position of each of the internal and external factors to translate it into the form of numbers. The purpose of this study is to describe the actual state of a problem and to know exactly the position of the object of study and measure it with numbers or applicable standards.

The results of this research are, first, land use in Malang City as appropriate as the land condition except the existing of settlement around reparain line that should be the protection area. Secondly, the activities of land use around river flood plain at Malang City was placed at Cel I. that's mean land use for settlement at Malang City had the Strength and Opportunities than the strategies was be (SO) strategy. From those problems, the recommendation related to land use for settlement have be control of land use by the land condition especially at the reparian line and the optimalitation of land use planning with the regional land use planning with usefull of strength and opportunities.

Keywords: Malang City, Watershed, Settlement, Spatial Plan

PREFACE

Gratitude Praised to Allah SWTfor all of theblessingsmercy, blessesandwho has given his guidance so that I could finish my undergraduate thesis entitled "ANALYSIS AND STRATEGY OF LAND USE FOR SETTLEMENT AT WATERSHED (DAS) BRANTAS OF MALANG CITY".

This undergraduate thesis is the final project that is proposed to be eligible to obtain a Bachelor degree of Public Administration Science at Faculty of Administration in University of Brawijaya. The author realized that the preparation of this undegraduate thesis would not exist without the help and encouragement from various parties. Therefore, on this occasion the author would like to thank the honorable:

1. Prof. Dr. Bambang Supriyono, MS., as the Dean of the Faculty of Administrative Science.
2. Mr. Dr. Choirul Saleh, M.Si., as Chairman of the Public Administration Department at Faculty of Administrative Science.
3. Mrs. Dr. Lely Indah Mindarti, M.Si., as head of the Public Administration Prodi at Faculty of Administrative Science.
4. Prof. Dr. Abdul Hakim, M.Si., as supervisor I express my deep gratitude to him who guidance, advice, support and providing literatures.
5. Dr. Imam Hanafi, M.Si., as second supervisor I also thanks to him for his remarks and advice.
6. Beloved parents, brother, sisters and the entire family of author, thank you for your prayers, support and patience. Most of all, I thanks my beloved Daddy Mr.Sutrisno. Without his support, this work would never have been completed.
7. My warm thanks go to Mr. Moh. Said, S.Sos, M.AP who I have had long discussion about various topics and give me some suggestion to select topic of this work.
8. My thanks are extended to several lecturers at the Faculty of Administrative Science Malang with whom I have had longer or shorter

enlightening discussion and given all the knowledge during period at my study.

9. All employees and staffs of the Faculty of Administrative at Brawijaya University who has given a lot of help and cooperate with the author.
10. All employees and staff BAPPEDA Malang City, for the opportunity, support, and cooperation given to the author in conducting research, data retrieval and data collection.
11. All employees and staff BLH Malang City, for the opportunity, support, and cooperation given to the author in conducting research, data retrieval and data collection.
12. All employees and staff DPU Malang City, for the opportunity, support, and cooperation given to the author in conducting research, data retrieval and data collection.
13. I wish to express my gratitude to my beloved friends Nevia Ayu Rahmadhani, Marsa Admariesy, Rino Oktaviano and Winda Rahayu for their sincere helping me at conducting research and collecting data.
14. All friends fellow at Public Administration of 2010 that have always inspired in the writing and preparation of this undergraduate thesis.

Hopefully, this study can enrich the research in the discourse of Public Policy approach in public administration and become an inspiration for the next researchers in conducting related studies. For the sake of completeness of this undergraduate thesis, suggestions and constructive criticism are expected by the author. Hopefully this undergraduate thesis can make meaningful contributions to those in need.

Writer

Lina Maesari Agustina

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CHAPTER I

INTRODUCTION

A. Background

The development was happen at every aspect of life, it wasn't different with the development that happen in the cities like Malang City. Malang City had vision and mission and once is as the education area. The consequent is the rapidly of development at Malang City. The development was affected at the increasing of urbanization and at the next step was also affected at the housing and settlement problems. The demand increasing of housing and settlement were happen because of the high urbanization that did by society, even society in Malang City and also society at around of Malang City. Some of problem housing and settlement demand were solved by local government program, but it's didn't close the possibility that the high of society demand toward the housing and settlement providing weren't solved by government formally, than it's caused the appearance of buildings were built informally. Usually, the informal buildings or settlement were grown around the watershed (DAS) in the City itself. Indirectly, was interpreted that the development in the urban area stimulated to the thriven of illegal settlement around the watershed (DAS).

The limitation of housing land in urban city and also the economic factor were affected to the informal settlement development in flood plain or usually we called as watershed (DAS). The arrivals existence from the others area around of Malang City as the consequence of urbanization process was increase the demand of land function for settlement. While the existence of land is static, it's mean that

can't be expanded, but only can be exchanged. Usually, the arrivals that hadn't home stay certainly at the dignity area use the empty land or land weren't inhabited for building their own home stay. According to the research that held by Dony (2011) it was found about the increasing of land use changing for settlement in years 2001-2006 about 0,71%. Whereas for the others land use changing such as irrigation farming decrease about 0,49%, agriculture field increase about 4,60%, empty land decrease about 0,02%, garden increase about 4,66%, scrub decrease about 0,16% and forest decrease 9,29%. The existence of river Brantas that traverse Malang City is the reason of watershed (DAS) if the once of potential area that develop become the settlement.

The land use changing become settlement area giving affects to decreasing of land use that functioned for forest and farming. In other opinion such as Suparma, etc (2011:12) that the condition of geology, geography, topography, climate, and weather were very dynamic and also the human activities in the region were affected to the region and become susceptible and potential of natural disaster such as flood, tsunami, mountain explosion, earthquake, land slide and the others of disasters. Even the scientist like Boserup at Arifin (2001:67) was assumed that the human growth as the stochastic factor or external factor at the history of farming development. He said that the human growth as the driving force at the behind the rapidly of technology changing and development. Even thought that the assumption was be corrected, but it's doesn't mean that the forest decreasing and damage be able to neglect in the land use changing process. The forest decreasing was affected to the highest of the water flow at watershed (DAS)

Brantas than will affect too at the treat like flood. The condition was should be anticipated such as held the restructuring of settlement area in demarcation line of river that usually called as (Sempadan) at watershed (DAS) Brantas. Based on the RTRW of Malang City year 2010, was planned the structuring settlement program by replacement the society in the more safety area, it's more like giving the alternative to relocate the building in the demarcation line (sempadan) 15 m and was called as damage susceptible area (damage area), next the area was developed as the recreation and city green area, especially for the area with maximum declivity 30%. The alternative relocation was proposed by local government of Malang City it's without any reason. Look at the water function a the primer human necessaries. The water is natural resources that have most important function toward human life and for all the live creatures in the world. The water function was very kinds and also as the reason that water become the once necessary that can't be adjourned at using. Even the geographic condition of our earth consist of more that 50% of water, but for all the water that exist only among of them that able used by human. Once of the water resource is river. However, the river existence as the water providing has the own problem. The raining and dry weather was often made the river condition instable between flood and drying. The condition was threat the river Brantas that traverse through some are of East Java. The rank of river Brantas staining was high than the quality of water in river Brantas at category D when the category was sign that the water only proper for livestock animal consumption. Deeply, was found through some of studies that not only nature itself that affect toward the river condition and river staining but

also the human activities that stain the river with some of waste domestic and industry. Also the society activities around the river affected to the river condition, it was happen begin from shallow till the contaminate the river with the dangerous chemistry material than the water is doesn't able for human consumption. The human activities also affect toward the river fluctuation. Through the enlightenment program (PAR) at year 2009 there are consist of three environment problems that specially happen at watershed (DAS) Brantas such as: 1) the forest damage, 2) the threatening of land damage, and 3) the threatening of the water dead (Elok, Sri and Suryono, 2012).

Definitely the problems above need the arrangement that giving the solution for every party. The parties that involved not only the local government that have the power as the government apparatus in the term to determine the good policy, but the society and the private sector also have the right to involve and participate in the term of developing the area and more friendly to the environment and for the natural rescuing. The new paradigm in the term of government implementation in the term of governance that involved the multi actors it was need and implemented at the river organizing system. The statement was supported by Raharja's study (2009) "*the river organizing is the collective interest among organization, even central government and local government, society and also private sector*".

Spatial planning has three objectives, namely the optimization of resource utilization (productivity), the balance and fairness (equity), and sustainability (sustainability) (Rustiadi et al.2004). The deviation space utilitzationbased on the

spatial plan which is feared to hamper that goal.Consider to the multi actors that involved at the river organizing and also the region that exist around the area was hopped will be created the balance policy for every parties and also created the policy that more friendly to the nature. Assumed by the most parties that the development policy in urban was better if harmony with the nature. The long time ago was mentioned that the nature was determined the economical of region. The term was related that the highest of state welfare if doesn't supported by the nature, than the natural disaster was threat and ready to destroy all the development in every time.

Based on the problems that researcher was described above than was determined that the title of research is "**Analysis and Strategy of Land Use for Sattlement at Watershed Brantas of Malang City**".

B. Problem Formulation

From the description background that has been saidabove than was able to determain the problem formulation was formulate as follow:

1. Are there any irregularities in the space utilization at watershed (DAS) Brantas from the spatial plan?
2. How the strategical direction to optimize strengths and opportunitiesand also to minimize weaknesses and threats at determine the land use of watershed for settlement?

C. Research Objectives

The research was carried out with a view:

1. Review and evaluationg the irregularities possibility in the spatial utilization at watershed (DAS) Brantas with the spatial planning for settlement
2. Formulate strategic direction in spatial planning.

D. Research Contribution

From the research was hoped giving the contribution as follows:

1) Theoretical benefit
   a. As additional reference related with the policy analysis in the term of land use especially in watershed (DAS) Brantas for settlement and generally as the public administration science development specially public policy.
   b. As additional references for the next researcher in the same issues
2) Practical benefit
   a. For the government the research can add and become the suggestion for the better policy formulation process.
   b. For the related institution as the giving information to related institution in the policy implementation process, than the institution will giving the best contribution in the implementation the others policies.

E. Systemics of Discussion

Systemic of discussion in this paper consists of five chapters.

Chapter I Introduction: This chapter describes the background of problems, the problem formulation, research objectives, research contributions, and systematic research. Background of study had been explain about the development at Malang city was affected at the increasing of urbanization and also was followed by the increasing of illegal housing because of the high demand about settlement. The condition was explained by some data that been presented by author. The illegal housing was placed at long of watershed at Malang city. The human and industries activities such as throwing the waste at the river were threat the river condition. Unaware Malang city was threat by some natural disaster such as flood, and earth slide and so on.

Chapter II Literature Review: This chapter describes some previous research and some theories that contain the research, which includes public administration, public policy, spatial planning, settlement policy, and watershed (DAS). The definition, locus and focus of public administration would give the understanding where the research was placed at the public administration study. Also about the public policy was included because the research had research about the public policy related with the spatial planning and were be focused about the settlement policy. Definition and

some of subject related about watershed were be included as the theory because the research location had been placed long of watershed that crossed Malang City.

Chapter III Research Methods: This chapter describes about the method of research such as: types of research that were used descriptive with quantitative approach, research location were placed at Malang City as generally and Watershed that crossed Malang City specially, the types of data include two kinds there were primary and secondary data and sources of data were come from the literature review and field study, data collection techniques were consisted of questioner, documentation and observation, research instrument consisted by the researcher, interview guidelines, and field notes, and the data analysis were consisted by IFE Matrix and EFE Matrix, SWOT Diagram, and SWOT Matrix.

Chapter IV Research Findings: This chapter describes the results of research include the presentation of data and data analysis in the form of general study of the subject, description of the data focus research and analysis and interpretation data.

Chapter V Closing: This chapter consists of a summary of data that has been discussed and given advice the conclusion that can be used as an ingredient consideration of interested.

CHAPTER II

LITERATUR REVIEW

A. The Previous Researchs

At below are some previous researchs that related to the research location:

Table 1 Previous Researchs

No	Researchers, Tittle and Year	Method	Findings	Category
1	Fauzul Iman: "Analisis dan Strategi Pemanfaatan Ruang di Kabupaten gayo Lues, Nanggroe Aceh Darussalam".2007	Overlay, Buffer and SWOT	The research show that land use suitable with land plan except the land the settlement occupied by tourism and farm. For the swot analysis show that the opisition of land use was placed at cel 1 at the condition of strength and opportunity.	Thesis Seminar of Postgraduate
2	Jumyati Dwi Kusmawati, :	Rational method	The result showed that the	Undergra

	"Pengaruh Perubahan Peruntukan Lahan Terhadap Kinerja Saluran Drainase di Sub Das Brantas (Study Kasus di Kecamatan Klojen)", 2008		overflow directly was proportional increase with the increasing of run-off coefficient as a result of changes land use. With the increasing amount of run-off discharge, it alsi affects he performance of drainage channels. There are several drainage capacity is smaller than the discharge plans orr in other words meaning the channels is unable to accommodate the run-off discharge, thus resulting in a pool.	duate thesis
3	Reki D Cahyono, "Kajian Historis Kehidupan Sosial Ekonomi Masyarakat Bantaran Daerah	Descripti ve analysis with the qualitativ e	The majority of society at Malang City especially in the watershe (DAS) brantas sub Kesatrian was comefrom outside of Malang City and they	Undergra duate thesis

	Aliran Sungai (DAS) Brantas Kelurahan Kesatrian Kota Malang dan Makna Pendidikannya", 2009	approach	wascalled as the arrivals. The society in the area was heterogen that cosist of the arrivals of java and Madura ethnic than it was possible the social interaction thas was called social and conflict.	
4	Indrayato, Toni, "Penyusunan Model Pengambilan Keputusan dalam Pemilihan Prioritas Penanganan Bangunan Air yang Rusak Akibat Bencana banjir di Bagian Hulu Brantas (Studi Kasus Pada Daerah Bencana Banjir di Kota Batu dan Kab. Malang)", 2007	AHP (Analytic Hierarcy Process)	The result of this study the hierarchical model with three (3) levels: golas (priority handling election waterworks), criteria/sub-criteria (physical, economic, socio-cultural, environment, and policy), and alterative project by 8 (eight) dam. Prioritization handling generating sequence Karangampel Dam Sarem, Dam watugede, Selorejo Dam,	Thesis

			Dam Prambatan, Gabio Da, Dam Ngukir, and the last Dam Gedangklutuk	

Source: Sources was processed (2013)

B. Public Administration

B.1. Definition of Administration

According to The Liang Gie (1972:12), administration is a whole series of structuring activities the basic work that was done by group of people in a specific collaboration goal. Meanwhile, according to Hadari Nawawi (1990:30), administration is an activity or series of activities as the cooperative effort control of group people to achiee the common of goals that have been set previously.

Sondang P. Siagian (1992:2) argues that the administration is the whole process of cooperation between two or more people based on a certain rationality in order to achieve predetermined objectives by utilizing facilities and infrastructure are efficient and effective.

The definition of the expert that were be explained above about administration did so much than can be drawn a conclusion that the administration is an activity that many people require coopreration to achive a certain goal.

B.2. Definition of Public Administration

Public Administration according to Denhardt (1991:3&13) concerned with the management of public programs. That later described hereinafter page back that the public administration as the management of public programs. Meanwhile, according to George j. Gordon (1982), public administration is the whole process in carried out both organization and indiciduals with regard to the application or implementation of lawas and regulations issued by the legislature, executive, and judicative. Dwigt Waldo (1955) explains that public administration is the managemen and organization of the humans and equipment in order to achieve the government's objectives.

Thus refers to some definitions above it can be concluded that the public administration is the shole process of cooperation involving all levels of government including the legislative, executive and judcative in the government implementation and in the term of governance t achieve the goals.

B.3. Locus and Focus of Public Administration

Locus is the location describes where the science was located. In this case the locus of the public administration science is the public interest and public affairs. While the focus of public administration science are the organization and management science.

B.4. The Scope of Public Administration

Nicholas Henry (1995) describes the scope of public administration are like what he was explained below:

a. Public prganization, principally regard with to models of organizational and bureaucratic behavior.
b. Public management, namely regard with the system and human resource management, and
c. Implementation, which involves the approach of policy and bureaucracy ethic.

Dimock and Dimock (1992:26) devided the four components of public administration, as follows:

a. What government does, policy influence and political actions, basics, authority, government, government work environment, determination objectives, administration policies that are internally, and plans.
b. How does the government regulate the organization, personel, and cost his efforts, in terms of formal structures that organization.
c. How the administrators create the cooperation. The flow and administration process in the implementation with emphasis of leadership, demands, coordination, delegation of authority, the central relationship with the parts, supervision, morale, public relation and so on.

Meanwhile, according to Keban (2004:10), the scope of public administration includes policy, organization, management, moral and ethic, environmental and accountability.

C. Public Policy

C.1 Definition of Public Policy

Fredrich at Winarno (2007:17) view the policy as a direction of action proposed by person, group or government in a given environment providing obstacles and opportunities in order to achieve a goal or realize a goal or a purpose. The definition involves a broad dimension because the policy is not only understood as the proposed action only person, group, or government.

In glossary cited by Islamy (2001:20), given the means of public policy as follows:

i. The organization framework of perposes and relasionales for government programs that deal with specified societal problems.
ii. Whatever government choose to or not to do.
iii. The complex programs enacted and implemented by government

Islamy (2001:20) concluded that public policy is determined and measures implemented or not implemented by government which has the purpose or goal-oriented in the interest of the whole society. By the very nature of public polices based on the understanding that public policy should serve the interests of society.

C.2 Public Policy Process

Policy process sequentially by William Dunn (1999) in Winarno (2011:35) as follows:

a. The preparation of th policy agenda (agenda setting)

Agenda setting is the phase and strategic process in the reality of public policy. In this process have the space to make sense of what is reffered to as a public issue and was staked of priorities in the public. If an issue managed to gain status as a public issue, and get priority on the public agenda, the issue is entitled to the allocation of public resources more than on other issues. In agenda setting is also very important to determine public issues to be raised in a government agenda. Policy issue is often referred to as a matter of policy (policy problem). Policy issues typically arise because there has been disagreement among the actors about the course of action that has been or will be taken, or opposition views on the character of the problem. According to William Dunn (1990), the issue of the policy is a product or function of the debate either by formula, details, description and assessment of a specific problem. However, not all issues can be entered into a policy agenda, agenda setting and policy should be based on the level of urgency and essence and stakeholder involvement. A policy should not obscure the degree of urgency, the essence, and stakeholder involvement.

b. Policy Formulation

The issue had been entered to policy agenda discussed by policy makers. The problems had been defined for solving problem then look for the best problem solving. The problem solving is derived from a variety of available alternatives or policy options. Similarly, the struggle of a problem to get into the policy agenda, the policy formulation phase of each alternative can bee chosen to compete for the best measures taken to solve the problem. At this stage, each actor will "take role" to propose the best solutions.

c. Adoption of the Policy/ Policies Legitimacy

Of the many policy alternatives that had been offered by policy makers, in the end one of the alternative policies adopted with support of a legislatives majority, the consensus among directions of the institutions and judicial decision. The goal of legitimacy is to provide the authority on the basis of governmental. If the act of legitimacy at the society governed by the people sovereignty, than the citizens will follow government directives. However, citizens must believe that government legitimate action.

d. Policy Implementation

A policy program will be the only elite's records, if the program had not been implemented. Therefore , the program decision that has been taken as the policy program alternative to solving the problem should be implemented, which is implemented by

administration agencies or government agencies at lower levels , implemented policies that have been taken by the administration units of financial and human resources mobilize . At various stages of this implementation will be competing some interests. Some of the implementation of the policy has the support of the implementers, but some others may be opposed by the executor.

e. Policy Evaluation

At this stage the policies that have been implemented will be assessed or evaluated, to see the extent to which policy is made has been able to solve the problem. Public policy is basically made to achieve the desired impact. In this case, solving the problems faced by the community. Therefore, it was determined the measures or criteria that form the basis for assessing whether public policy has achieved the desired impact. In general, the evaluation of public policy said as activities involving estimates or judgments that include the substance of policy, implementation and impact. In this case , the evaluation is seen as a functional activity . That is, the policy evaluation not only done at the end of the course, but the whole process is done in the policy. With all the process than policy evaluation could include the formulation stage policy issues, the programs proposed to solve the problem of policy, implementation, and stages of the policy impact.

C.3 Policy Analysis

In a certain sense, an analysis controlling consists of breaking something into its parts to determine the nature, proportion, function, and the relation (Hardjodipuro, 1979:9).

E.S. Quade (the late) a former Head of Department of Mathematics at the William N. Rand company Dunn (2003:95-96) defines policy analysis as:

> "A form of analysis that produces and presents the information in such a way so that members can be the foundation of the policy makers in making decisions ..... In policy analysis, said the analysis used in the most general sense; including the use of institution and brainstorming and includes not only testing policy sorted into a number of components but also the planning and synthesis of new alternatives. The activities included stretchable start the research to explain or give views on the issues or problems anticipated to evaluate a complete program. Some informal policy analysis, covering no more than the hard thinking and careful, while others require extensive data collection and accurate measurements using sophisticated mathematical process"

Policy analysis was focused mainly on the problems that arise as a result of central government policy through the understanding and development of ideas to resolve the issue within the framework of the policy development process *(Patton dan Sawicki, page 4–5)* "policy analysis has concentrated primarily on problems of the federal level of govermenet. Analysis itself is the breaking up of a policy problem into its component parts, understanding, and developing ideas about development process)."Policy can be done before or after the policy has been implemented."(Patton and Sawicki, page:18).

William N. Dunn (2003:97) explained that in order to carry out policy analysis used three approaches are: empirical, valuation and normative. The

empirical approach is emphasized, especially in description of the cause and effect of a particular policy. Here the main question is factual (whether something exists?) And the kinds of descriptive information generated. In contrast, the approach valuation mainly focused on the determination of the weight or value of some policies. Here the question regarding the value (how the mark?) And the type of information that is generated is valuation. Last normative approach emphasized on the recommendation of a series of actions that will come to resolve public issues. In this case, the question wich respect to the action (what to do?).

Also mentioned in the same book by William N. Dunn (2003:101) somepolicy analysis procedures that have been given special names, namely)1) Monitoring (description) allows us to produce information about the causes and consequences of past policies, 2) forecasting (prediction) allows us to generate information about the consequences that will come from the policy, 3) evaluation include the production of information about the value or usefulness of past policies and future, and 4) recommendation (prescription) allows to generate information about the possibility that a series of actions that will come will bring the valuable consequences. Except the fourth procedures, also mentioned that there is procedure that can not be explaned samely with the procedures which had been discussed above.the procedure is (5) problem formulation, for doing this kind of analysis, first of all it must be recognized of a problem.

Based on the above understanding, it can be concluded that the anaylisis is a amethod or technique of in investigation used by a researcher to an event or phenomenon that occurs in the middle of the community, is used to determine the circumtancees in detail togain an overall understanding of events or the phenomena wich concerned. In this subject, the analysis is of the spatial arrangement involving therein the arrangement of the watershed (DAS) wehere the spatial policies were analyzed the suitability used as a settlement area with a good SWOT method by the the analysis desricption and quantitative approach.

D. Spatial Policy

D.1 Definition and Concept of Spatial Policy

Spatial or space is includes of land space, ocean space, and air space; and also includes of land or soil water, materials, energy and the condition itself as the one part of area which the human and other creatures live and doing their activities and also keep their life sustanibility (Tarigan, 2004:43). Spatial planning is the planning of using/benefits of the spatial itself. In other word is the land use planning and planning of the land movement. Basically spatial planning is determined there are parts of region zone which distintly regulated the land use and (obviously it was designed) and there are parts of the territory that is less/not set the utilization. For parts that are not set to the application submitted the utilization to market mechanism spatial planning or the planning of space/land use is that utilization can provide the greatest

possible prosperity for the community both shorth term and long term, including the power to support the creation of defense and security (Tarigan, 2004: 43).

The implementation, spatial planning is synonymous with the end end result which be achived, namely spatil. Spatial reference to Act No. 26 year 2007 be interpreted as a form of spatial structure and spatial pattern. Deeply,described that the space structure that had been explained is the composition of settlements and infrastructure network systems that support social and economic activities that have a fuctional relationship hierarchically. While the pattern of space distribution that had been explained is the space allocation within regional that includes of the space allocation for protecting function and space allocation for cultivation function. Thus, the activity called planning or preparation of spatial plan. Spatial planning or spatial arrangement can be divided into two categories, namely planning that covering the entire area which is urban and non-urban (back region), for example National Spatial Planning (RTRWN), Provincial Spatial Planning (RTRWP), and District Spatial Planning (RTRWK). The second os a plan that is specific to urban areas, such as City Spatial Planning (formerly called the master plan), the Spatial Planning of District, Spatial Plannig of Capital District (IKK). The main differences of these two types of planning activities are contained in the planning area. In the overall planning of urban areas and there is no activity non-urban activities with the main focus to creat harmonious relations between cities with the area behind. In the town area planning, the main

activity is the harmonious relationship among various activities in the cty to serve the needs of the urban community itself plus the needs of the community that are coming from out of town (Tarigan, 2004: 44).

D.2 Platform and Benefits of Spatial Planning

In the territory of the Republic of Indonesia, clearly set the state right as Constituion year 1945 Article 33 Paragraph (3) which reads " the earth and water and also the natural resources which are contained inside shall be controlled by the state and used for the prosperity of the people". In a wolrd Bank issue, Whitehead (Dunkerley, ed;1983:108) at (Tarigan, 2004:44) writes "The market mechanism is unlikely, on its own, to produce an efficient allocation of land uses". This means that the market mechanism alone will not produce an efficient land use allocation. Thus, if left unchecked, the public welfare would not be optimal or may even decline. This has encouraged that the government needs to intervene in land use regulation.

Whitehead at Tarigan (2004:44) suggests several reasons why the government should intervene to the land use regulation:

a. There were need the the land existence for public interest (public goods), which if left to the market mechanism, it will not be available or the availability is not as much as needed. Land in the public interest eg; road network, drainage, sport field, educational, facilities, healt facilities, and so on.
b. The presence of externalities factors (extenalities), namely the impact of these activities on the surrounding environment that could harm or

benefit society, but does not affect acceptance expenditure of institution conduction such activities. For example, industrial activities that cause pollution if not set location can create losses (eg in healtf) for the society around.

c. Imperfect information, concerning the current conditions and what people are currently planned to be implemented in the future. The impact due to imperfect information is the market does not respond appropriately to what the community is not optimal.

d. Purchuasing power is not evenly distributed, so there are certain parties who may own land in excess but there are others that are difficult to get land when the land is a basic need of every huma being at least as residence.

e. The differences between the public assessment of short-term benefits with long-term benefits, people tend to assess the short-term benefits are more important than the long-term benefits. This is likely to harm the interests of future generations. If left uncheched, people tend to over exploitation (Tarigan, 2004:45).

D.3Typology of Spatial Planning

There are several ways to establish a zoning. Zoning when viewed from above is to divide a wide area, such as a country's territory into several smaller areas. A zoning can be classified based on the purpose of the establishment of the area itself. Under Law Number 26 Year 2007 Spatial planning can be classified based system, the main function area,

administration area, activity area, and the area of strategic indigo. Furthermore, the classification outlined in Article 5 as follows:

1) Spatial planning based system consisting of a system of urban areas and the internal system
2) Spatial planning is based on the primary function of the region consists of protected areas and cultivation area
3) An administration arrangement of space by region consists of national spatial planning , spatial structuring of the province , and the spatial structuring of the district / city
4) Spatial planning area consists of activities based on spatial planning of urban areas and rural areas of spatial planning
5) Spatial planning based on strategic value of the region consisting of the national strategic spatial planning region , the provincial strategic spatial planning , and strategic regional spatial planning districts / cities .

The basis of the zoning by experts can be distinguished by the following (Tarigan, 2004:103):

i. Based on government administration region, in Indonesia known as the provincial government's territory, district/city, district, rural/urban, and village/neighborhood.
ii. Based on the similarity conditions (homogeneity), the most common is the similarity of physical conditions. How the other division is based on socio-cultural similarities.

iii. Based on the scope of economic influence . It should be set beforehand multiple centers of growths (growth pole or growth center) which is roughly the same magnitude / ranking, then set the limits of the influence of each growth center.

iv. Based on 7 plans/programs. In this case set the boundaries of the area or areas affected by a particular program or project. (Tarigan, 2004: 103).

Planning type or types of planning within a country there will be a combination of different types of plans depending on the environmental conditions in which the plan was implemented. Glasson (1974) in Tarigan (2004) mentions the types of planning are:

1. Physical planning and economic planning
2. Allocation and innovation planning
3. Single or multi- objective planning
4. Indicative or imperative planning

In Indonesia, also known type of top- down and bottom - up planning, vertical and horizontal planning, and planning involving the public directly and which do not involve the community at all. Various types of these plans will be explained as follows (Tarigan, 2004:12):

1. Physical planning and economic planning

   This distinction is based on the content or materials of planning. Physical planning is planning to change or using physical structure of an area e.g. spatial planning or planning to hold, the provision of

facilities to the public, and so on. While economic planning with respect to changes in the economic structure of a region and the steps to meperbaiki level of prosperity of a region . Economic planning based on market mechanisms rather than more physical planning based on technical feasibility.

2. Allocative and innovative planning

   This distinction is based on the difference in the vision of the plan, that's between allocation planning models with respect to the success of the general plan which has been prepared at a higher level or has been a mutual agreement. While innovative in planning, planners have more freedom in setting targets and better ways to go to reach the target.

3. Multi or single objective planning

   This distinction is based on the widespread view that covered . If the sole purpose of planning objectives to be achieved is something that is stated explicitly in the planning and singular. It is a single target and round and is a unified whole. While the purpose of planning plural is planning to have multiple destinations, such as the widening and improvement of the quality plan connecting road is intended to provide some benefits as well, namely that transportation in the region more smoothly, can attract and encourage the establishment of new settlements increased market activity in the area.

4. Obviously Aim Planning versus Latent Aim Planning

   This plan is based on a concrete or concrete content of the plan. Planning aims obviously is planning to definitely state the goals and objectives of the plan, which the target measurable success. Planning latent aim is not to mention the planning target goal was even less clear that it is difficult to pin down. Latent planning purposes often unconsciously pursued, for example, want to live happier, lives in a society that is safe, comfortable, and full of family flavor.

5. Indicative or imperative planning

   This distinction is based on the rigor of the content of the planning and the level of authority of the implementing agencies. Planning indicated is planning where the goal is only expressed in the form of an indication that clearly is not pegged. Planning is imperative that govern good planning objectives, procedures, executing, execution time, materials, and tools that can be used to execute the plan. It is often referred to as a command system planning. Implementation on the ground is not entitled to change anything that has been stated in the plan, can only submit proposals.

6. Top Down versus Bottom-up Planning

   The distinction of the kind of planning is based on authority of the institutions involved. Model of top-down planning is the main authority in the planning if it is at a higher institution where institution planning at lower levels must accept the plan or direction of an

institution of higher planning. In contrast, bottom-up planning is a major authority in this plan are lower in institutions, where institutional planning at a higher level should accept the proposals put forward by institution planning at lower levels.

7. Vertical versus Horizontal Planning

   This distinction is also based on inter- institutional authority though with more emphasis on the differences of path planner coordination. Vertical planning priority is better planning coordination between the various molten metal in the same sector. This model based on success sector, thus emphasizing the importance of coordination between the different levels at the same institution (same sector). Horizontal planning emphasizes the linkages between the various sectors so that the various sectors can grow together. Planning is the importance of coordination among various agencies at the same level, each agency handle different activities or sectors. Between the two models have to commuted for producing a good plan.

8. Planning involving the community versus planning that do not directly involve the community

   This distinction is also based on the authority given to the planning institutions that are often associated with a field that is planned. Planning involving the public directly is if from the beginning the community has been notified and invited to join the plan. While, the planning which didn't involve the community directly mean the

planning without the community participation and maximum approved by local society representative (DPRD) for the final agreement. (Tarigan, 2004: 12).

D.4Land Suitability Evaluation

Increasing needs and competition in land use requires careful thought in making decisions in the most advantageous utilization of limited land resources. While it also taking action to its conservation for use in the future. Some problems in the structuring of the environment including lack of information of potential land, suitability of land use and land use management that can be used as a handle in the area utilization (Sitorus, 1998).

According to Hardjowigeno, S (2001), land suitability evaluation systems has some features:

a. As a way to schedule the usage request.
b. As a way of collecting, deviation, analysis, presentation of information and potential land use.
c. As a way of calling back and manipulation of information.

E. Settlement Policy

E.1 Land Uses

Land use proposed by Lindren (1985) in Destiwi and Parfi Khadiyanto (2013:215) are all kinds of uses utilization of human resources by covering the use for agriculture to sports fields, home stay to restaurants, hospitals to cemetery to fulfill the interests of human or as the place of human activity.

Referring to the opinion of Sandy (1977) in Destiwi and Parfi Khadiyanto (2013:216) urban land use can be classified as follows:

a. Land of settlements, include residential yard and athletic field
b. Land of services include private government offices, schools, health centers, and worship place
c. Land of business include markets, shops, stalls, and entertainment places
d. Land of industries includes factory and printing industry.

At the same source also mentioned that the use of urban land in addition to the use of land for residential building industry, trade is tourism and outdoor (Northam, 1975) in Destiwi and Parfi Khadiyanto (2013:216).

E.2 Concept and Definition of Settlement

According to Law No. 4 of 1992 about Settlement mentioned the basic understanding and the terms of settlement. Settlement is several homes that have the function of a shelter environment equipped with infrastructure and facilities. The settlements are part of the environment outside the protected areas, both urban and rural areas in the form that serves as a living environment or residential environment and the activities that support the life and livelihood. Then Mills (1987) states that housing is not just a shelter but also a residential plot of land with existing services in these locations (water, electricity, telephone, waste, etc.) and easier that enable services to outside location (education, health centers and other) work places and other facilities. Widely housing is an important element of the growth of economic welfare.

Housing and settlement policies of Indonesia in 2000-2020 include the development of residential location by taking into the total of population and its distribution, land use, nvironmental health, and the availability of social facilities, and harmony with the environment (Ministry of Housing, 1999). Kuswara (2004) in his study revealed that the settlement is a place of activity that utilizes the largest space of the cultivated area. Management of residential development should consider the availability of resources and its correlation with other activities. In fact, it is often overlooked that is not functioning optimally in supporting the successful development of a region / city. Therefore, required planning and design development efforts, as well as the building of settlements contributive to the spatial plan.

Based on the basic understanding, it appears that the settlement boundaries aspects strongly related to the concept of environment and spatial planning. Settlement neighborhood is residential areas in various types and sizes with spatial planning and infrastructure and facilities structured environment. Environmental infrastructure is the completeness of physical basis environment that allows neighborhoods to function properly.

E.3 Supporting Development Factors of Settlement

According to Yunus (2005) in Jauhari (2013:194-195) argues that there are six factors that influence the process of development of the city as a centrifugal. The sixth factor are the accessibility of the fiscal, public service facilities, land characteristics, the character of the owner of the land, the

existence of regulations on land use (land use), and housing development initiatives factors or investor.

a. Fiscal accessibility means the ease of an area to reach. Accessibility is influenced by both the transport aspects of the road network and transportation modes.
b. Public Service Facilities are pull factors that come into the area residents.
c. Characteristics of land associated with topography areas, air pollution, water supply, drainage, free from the threat of disaster, groundwater pollutant free.
d. Land ownership, associated with changes in land ownership. Weak economic society has higher tendency to sell the land rather than the more robust economic status.
e. The existence of government regulations land use. One factor that strongly affected to the intensity of the spatial development on the outskirts, the local regulations implemented consistently and consequently.

Factors developer initiatives have a strong role in directing spatial development of the city.

E.4 Settlements Development of Watershed

The growth of a city is often accompanied by the growth of settlements that occurring both rural and regional area. The growth of settlements in Indonesian generally has high complexity. According to Kuswartojo (2005) in Setioko (2013:91-92) suburban area except dualistic characterized, between unplanned settlements and rural settlements, housing mixed with autonomous,

built by individuals or families without interference of city authorities. Autonomous housing related with the existing planned residential area, which was built by the developers, or is adjacent to the original settlement, which has existed for long ago. Rationalization of the growth of residential areas is caused by the high price of land in the city and the low price of land in the suburbs. These conditions encourage public / land speculators to buy that land and then build it without regard regulatory design, compounded by the lack of oversight of city development. At the same source also mentioned that the suburban areas into locations scattered settlements are not integrated in the urban unit. This is in addition to difficult in scouting and development services, in the outer scope also has the destructive power of the environment. In the long term, expected big cities in Indonesia will continue to be inefficient as a result of the incremental housing development.

Economically, land use or land use change is the mechanism that brings between demand and supply of land that produces new land institutions with different characteristics (Nugroho and Rochmin, 2004) in the Son, BCA and Pigawati Bitta (2013:445). This land conversion can be run in a systematic and sporadic. Increased economic growth and population are causing increased land requirements including residential land needs. As a result, none awoke slowly changed into built land. It is also ultimately affect the characteristics of the Brantas watershed settlements in Malang.

F. Watershed (DAS)

F.1 Definition of Watershed (DAS)

Some definitionof the Watershed (DAS) according to experts including John (2007) mentions that the Watershed (DAS) is a form of resource collection: that is an area with hydrological relationships which coordinated and require optimal natural resource management of by all users, including forests,grasslands, agricultural land, surface water and groundwater.

Watershed (DAS) is an area of land that is topographically bounded by the mountain ridges which accommodate and store rainwater for later channeled into the sea through the main river (Asdak, 2004:4). That land area is called the catchment area which is an ecosystem with main element that consists of natural resources (land, water, and vegetation) and human resources as natural resource beneficiary.

Definition of Watershed (DAS) in government regulations through Law No. 7 of 2004 on Water Resources has also been mentioned as an area of land which is an integral part of the river and its tributaries, which serves to accommodate, store and channel water from the rainfall to the lake or the sea naturally, which is the boundary on land as topographic separator and sea boundary until the waters area that is still affected by land activities.

The area where the rivers obtain water is a rainwater catchment which is usually called a watershed. Therefore, the watershed through Malang City area. In other word, Malang City could be called as watershed because the city

area was bounded by mountain ridges which accommodate and store rain water for latter channeled into the sea through the main river.

F.2 Ecosystem of Watershed (DAS)

An ecosystem is an ecological system consisting of components that integrate with each other to create a unity. This system has certain properties, depending on the number and type of components that constitute it. The size of the ecosystem depends on the view and the boundary given in the ecosystem. Watersheds can be considered as an ecosystem (Asdak, 1995). Nasution L. and Anwar A. (1981) in Fatima N. (1997) suggested that a watershed is a unified ecosystem that has parts which are interrelated with each other. DAS components include:

a. Vegetation which controls the water system and soil protector from the destructive force of the raindrops , protecting soil from the traction of surface water runoff , as well as a component that can repair the water infiltration capacity and absorption power . Vegetation in this case according to Soemarwoto(1974) includes living plant in that area.
b. Soil is a natural mashed or a combination of nature body that can be regarded as a result of a three-eyed nature that is a blend between destruction and development style, which in this case Suripin (2001) states physically, soil is made up of organic mineral particles with different sizes.

c. Land use is a process of making recommendations regarding the location for a variety of human activities. It is generally considered that the soil and the land is an important part of the environment.

Watershed ecosystem is most important part because it has the function of protecting the watershed. Das ecosystems can be divided into three (3) parts that can generally be described as follows (Asdak, 2004:11) namely UpperWatershed, MiddleWatershed and the Lower Watershed. Those three parts have close linkage with each other. Watershed activities that lead to ecosystem changes such as changes in land use, especially in the uplands area, can give an impact on downstream area in changes of water discharge fluctuations and its sediment content and other dissolved materials.

Watershed ecosystem can be studied by classifying it into the upstream, midstream and downstream. The upstream watershed is characterized as a conservation area, downstream watershed as utilizationarea. Watershed in upstream part is have significant importance especially in terms of protection of water function , because of that every activities in the upstream area will have an impact in downstream areas in the form of changes in discharge fluctuations and sediment transport also dissolved material in its water flow system. In other words of watershed ecosystem, upstream section has a protective function against the whole watershed. This protection, among others, in terms of water function, and therefore the upstream watershed management is often become a focus of attention considering in a watershed,

the upstream and downstream have biophysics linkages through the hydrological cycle.

These three part of the watershed ecosystem that have been classified eachs have their respective functions. This is where the boundaries of that function can provide a comprehensive overview of the management and development of the watershed. Among the functions of each of these part is first, upstream watershed is based on conservation functions that are managed to maintain the environmental conditions of watershed so it not degraded, which among others, can be indicated on the vegetation cover condition of the watershed land , water quality , the ability to store water (discharge), and precipitation. Second, midstream watersheds are based on the function of water utilization that can be managed to benefit the social and economic interests, which among other can be indicated from water quantity, water quality, the ability to channel water, and ground water levels, as well as related to water infrastructure such as management of rivers, reservoirs, and lakes. Third the downstream watershed are based on river water utilization functions that can give benefit for social and economic interests, which is indicated by the quantity and quality of water, the ability to channel water, rainfall level, and related to the needs of agriculture, clean water, and wastewater management.

F.3 Reparian Line

In order to realize the river utilization as well as to control the destructive force of the river, there is needs to be determined the reparian line which is the protection boundary line of the river. The reparian line will be fundamental reference in the utilization and protection of the river and the development of settlements in the area around the river.

In determining the reparian line, there are three important aspects that should be considered include:

1. Legal / Law Aspects
2. Technical aspects
3. Social Aspects

In Law No. 7 of 2004 on Water Resources, stated that the river is forms of surface water that must be managed thoroughly, in integrated manner, environmentally by realize the sustainable expediency of water resources for the people's welfare as much as possible. Therefore the river must be protected and preserved, enhanced its functionality and usefulness, and controlled its damage to the environment.Minister Regulation No. 63/KPR/1993 described the definition and provision of reparian line. Reparian line is the outer safeguard border of the river. Determination of reparian line is intended as an effort so that activities of protection, utilization, and control over the resources that exist on the river, including lakes and reservoirs can be carried out in accordance with its purpose.

Criteria for the establishment of reparian line consistof:

1. River with levees outside urban areas.
2. River with levees inside urban areas.
3. River without levees outside urban areas.
4. River without levees inside the urban areas.

Determination of reparian lines based on Spatial Revision of Malang City Year 2001-2010 (VI: 42 - 43) are as follows:

1. For residential area that is within 15 meters of reparian line and declared as disaster-prone areas, then there is no other option in this structuring program besides moving the residents to safer areas. Location that has been left by the residents needs to be reorganized in accordance with the new land utilization. As for can be developed into :
   a. The former location of the settlements cleared from the physical buildings, reorganized as a green area or river conservation areas (urban forest).
   b. The former location of the settlements developed with the surrounding area as urban renewal areas (improving existing vitality).
   c. The location developed as recreational areas and green areas of the city (citypark), especially for regions which have maximum slope of 30%.

2. For the settlement area which are outside of reparian line more than 15 meters (in accordance with applicable regulations) with the physical environment condition that is not good and regulated , high population density , inadequate infrastructure can be applied to the concept of structuring settlements with the pattern of build up without displacing (according Presidential Instruction 5 of 1990) . The criteria applied in this environment rejuvenation concept is as follows :
   a. Arranging the direction of opening of each housing unit to the direction of the river in order to obtain a better view direction, and equip it with the inspections road infrastructure which limits the location of houses with the reparian line area.
   b. Reduce / limit the level of house density , in order to obtain the ideal level of building density for a healthy living environment , while also strive to increase the physical quality of the houses gradually with the system of mutual aid cooperative.
   c. Protect riverbank by reforestation pattern of protection and ornamental plants. Green and cleanliness movement is an attempt to improve the quality of the environment which can simultaneously strengthen community activities, social interaction and encourage the emergence of small industries.
   d. The entire series of rejuvenation activities is recommended to do with the local community participation so that the community can

helped maintain the drainage area of the river as well as prohibit the habit of throwing dirt and debris in the river.

3. For settlements area that are outside of the 15 meters of reparian line with good physical environments condition, the concept that applied is to improve the environmental quality of settlements with city greening patterns and increase public awareness of the function of the drainage area of the river as a conservation area . In this case greening remains selected as the entry point to the wider and complex activities, such as waste management , sanitation , environmental improvements , and finally to the development , maintenance and monitoring of the environmental quality of the river (Prokasih Program).

For the drainage area of the river that has not been touched by the settlement area at all , it should also immediately arranged for city greening program in addition to protect the area from the possibility of growth of illegal settlements by providing a road inspection , also provide warning signs (e.g. littering are prohibited in this area).

F.4 Characteristic of Watershed (DAS)

Characteristics which have great impact on watershed runoff include:

1. Size and shape of watershed

The impact of the shape of the watershed runoff can be shown by observing - hydrograph that occurs in two different forms of watershed but has the same size which received the same rainfall intensity. Elongated and narrow shaped watershed tends to generate

surface smaller flow rate than the widened or circular shaped watershed.

2. Topography

Watershed with steep slope with tight ditch / channel will result in the rate and volume of runoff that is higher than the declivous watershed infrequent ditch and the presence of notches. Effect of ditch density, i.e. the length trench per unit area of watershed, the runoff concentration time is shortened, thus increasing the rate of surface runoff.

3. Land use

The influence of land use on runoff stated in surface flow coefficient (C), which is a number that indicates the ratio between the amount of runoff and rainfall.The runoff coefficient value is one indicator to determine the physical condition of a watershed. C values range from 0 to 1. Value of C = 0 indicates that all rain water are intercepted and infiltrated into the soil, otherwise to the value of C = 1 indicates that all the rain water flowing as surface runoff. At the watershed that is still good, the value of C is close to zero, the more damaged watersheds, the value of C is perilously close to 1 (M , Suripin. 2001).

F.5 Issues and Natural Disasters that Occur in the Watershed (DAS)

Brantas River Watershed has some problems were related to:

1. Land Management Issues

Land resources have a very important role for human life. All forms of cyclicaly and permanent human intervention to meet their needs, both material and spiritual which originate from the land covered by the definition of land use. With the double roles, then in management efforts, there were always conflicts between development sectors that require land. This phenomenon often results in less use of land in accordance with its capabilities. Mentioned that through out East Java there are tens of thousands of hectares of degraded land and critical potential outside the forest area, almost entirely managed by the various types of dry land farming in subsistence by its community's owners. One of the main problems faced are the bio - physical state of the dry land is very diverse and some have been damaged or has enormous potential to be damaged. (Soemarno, 2009:1-2)

2. Technology Problems of Soil and Water Conservation

Problems and constraints for land conservation efforts that are often found in degraded lands are:

- The condition of the land is steep so land management will stimulate and accelerate the process of erosion and landslides ,
- The low average income of the dry land farmers causes them not be able to afford fund for soil conservation activities

- The limited empowerment of farmers for soil conservation as a result of limited income and family needs that always kept pushing , and
- Limitations of infrastructure for the development of conservation farming systems based agroforestry. (Soemarno , 2009:7)

Natural Disasters is a phenomenon that causes harm to life or property, both individuals and community due to some cause or the other (Supaman, et al, 2011: 11). Watershed is a disaster-prone area. Among disasters that might occur in the watershed include:

1. Erosion is the process of erosion of the surface layer of soil by water flow. The phenomenon of erosion can take the form of various kinds, such as: a)Sheet erosion is soil erosion (sheet esorion) that usually Occurs in the mountains of time or after a heavy rain, b) erosion ditch (linear / gully erosion) that occur in the flow of water or river either on the base or on the river banks, c) erosion on the shoreline (erosion) by the caused by waves or currents.
2. Sedimentation is the process of deposition erosion results in downstream areas which can lead to siltation of rivers which can lead to flooding.

He also explained that the two disasters can also lead to other disasters. Disasters by the caused by erosion and sedimentation are indirect and require longer periods of time. Erosion and sedimentation in addition may result in flooding, destruction of irrigation and drainage networks, can also have an impact on the health and welfare of the community. Further explained

that the erosion in the river can result in damaged or non-functioning of the buildings along the river such as bending, power plants, bridges, etc. (Supaman, et al, 2011:15-16).

F.6 Watershed (DAS)Management System

DAS settings have been carried out through a variety of regulations issued by the government, among others, the 1945 Constitution Article 33 paragraph (3) states that the utilization of water resources should be devoted to for the greater prosperity of the people. At the level of details, there are laws governing water resources is law. 23 of 1997 on Environmental Management, Law no. 7 of 2004 on Water Resources, Law No. 24 of 2007 on Disaster Management, and Law No.26 of 2007 onSpatial Planning.

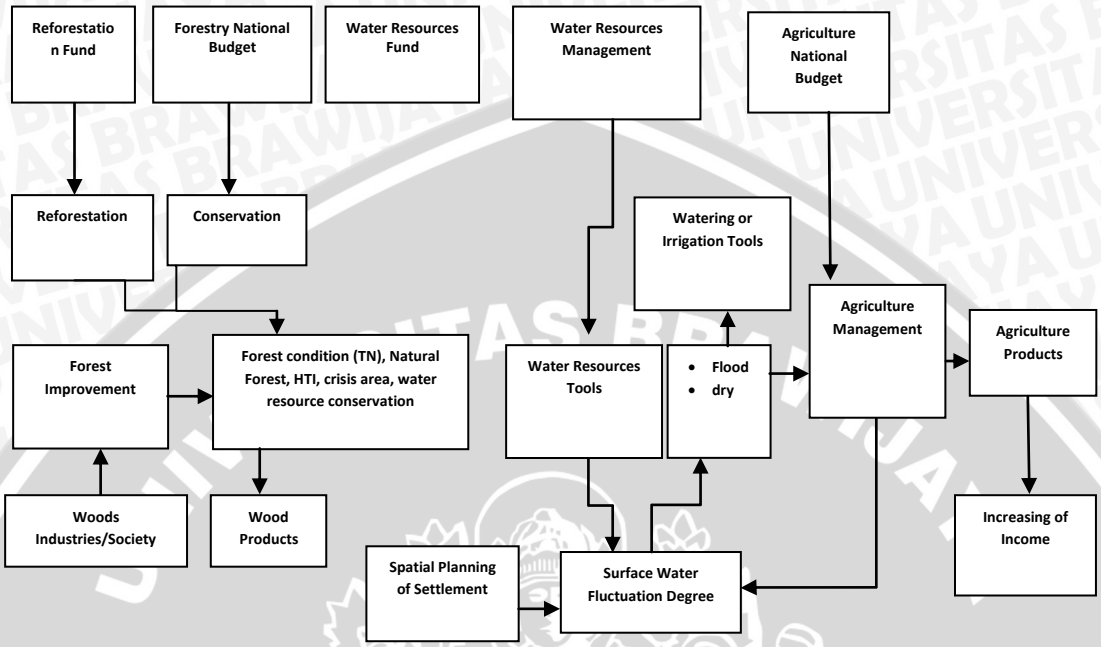
Problems of water resource management is becoming more complex given the Basin Unit (SWS) or Regional Drainage River (DPS) is technically not restricted by administration boundaries but by functional boundaries as the flow of water. Thus, the problem of coordination between the autonomous regions are in the SWS or DPS to be very important in the management of water resources.Based on hierarchical spatial arrangement and characteristics of water resources across the region (cross jurisdiction) and utilization across sectors, it requires good coordination mechanism (Suganda, Yatmo, and Atmodiwirjo; 2009).

River management should be seen as a natural entity consisting of upstream, midstream and downstream, in the context of One River, One Plan,

One Management. This is According to the formulation of watershed management workshop held in Yogyakarta in October 1985 where it was agreed that watershed management is conducted in accordance with the principle of "One Watershed One Management Plan". The principle of the statement has the sense that the DAS unit has been established as a unit (unit) management and handling of different between the DAS unit with another unit in accordance with the watershed between the River DAS. Linkage characteristics, management and condition of The River Community is a long landscape, divided into many parts with different characteristics and problems. Watershed management framework consists of three-dimensional analysis of watershed management approaches, namely (Hufschmidt, 1986 in Asdak C, 2007):

a. Watershed management as a process that involves the steps of planning and execution of a separate but closely related.
b. Watershed management as a system of planning and management as a means of implementing watershed management programs through relevant and related institutions.
c. Watershed management as a series of activities related to each and require specific management tools.

Figure 1. Various models of linkage activities in the watershed

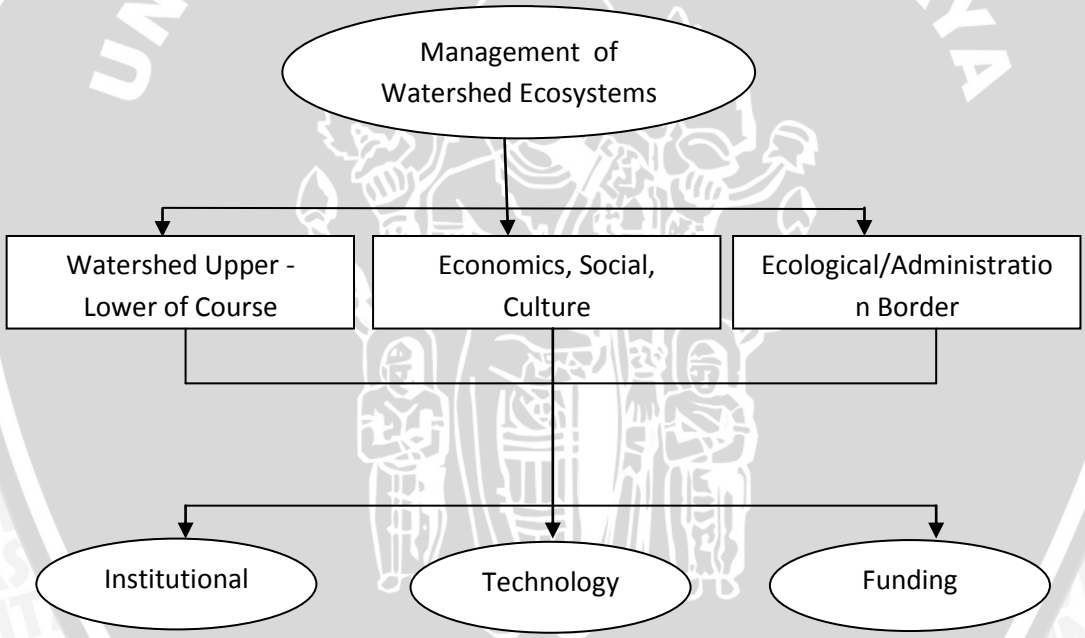


Source: Directorate of Forestry and Conservation of Water Resources (2012)

Critical issues of land, erosion, and flooding due to a broad demographic of problems, from the standpoint of ecology and population growth exceeded the carrying capacity of the environment (Soemarwoto, 1985). The opinion illustrates that the number of people with all its characteristics very influential on local environmental quality. Although the land is giving great possibilities for intensification and absorb the total population, but in the end the land available is shrinking and no longer sufficient for the needs of a growing human. So, we need the support of the local community to Participate through a community development effort. Recognizing that disaster is happening around the watershed is not only the duty of the local government but also the task of the local community, then

(Suparman, et al, 2011:47-48) describes several forms of public participation as follows: a) The public should be aware of the environment which they reside, b) people should obey the rules made by the government, c) people should help the government care for the safety of flood control structures damage done by humans, and d) people who happen to live on the edge of the river should plant crops that to protect the river bank with the instructions of the local Irrigation Department.

Figure 2. Watershed Management Model



Source: Directorate of Forestry and Conservation of Water Resources (2012)

G. SWOT Analysis

Strengths, Weakness, Opportunities, and Threats (SWOT) analysis is a Commonly used instruments roomates internal scans internal strengths and weakness of a product or service industry and highlights the opportunities and threats of the external environment (Rauch, 2007). SWOT analysis is to identify the factors systematically to formulate a strategy. This analysis is based on the logic that maximizes the strengths (strengths) and opportunities (opportunities), but at the same time can minimize the weaknesses (weakness) and threats (threats). The decision making process is always associated with developing a strategic mission, goals, strategies, and policies (Rangkuti, 2000). Generally SWOT is a list of statetment of factors with descriptions of the present and future trends of both the internal and external environment: the expressions of individual factors are general and brief describes roomates wiki views. SWOT analysis (Strength, Weakness, Opprotunities, and Threats) analysis is a form of management that is used to look at strengths, weaknesses, opportunities and threats that will be faced by the organization. SWOT analysis is an analytical tool that is Widely applied to the analysis of the internal and external environment in the which both factors have an important role for the future of the business is Commonly Referred to as a strategic factor. Although at the beginning of its Emergence over the SWOT analysis is used in the business sector. But in its development SWOT analysis can be also used to analyze Considered the internal and external factors in the determination of public policy on the science of public administration. This is related to the ability of the SWOT analysis in describing

the situation of both the organization and the internal environment of the organization external. The condition is Considered to provide a complete picture of the condition of the organization.

In a SWOT analysis, there are two factors that should be considered, namely the power of the internal environment (strengths) and weaknesses (weakness) and external environmental opportunities (opportunities) and threats (threats). According to Pearce II and Robinson (1991), strength (strengths) is a resource, skill or other relative advantage against competitors and market needs, weakness (weakness) is limited in resources, skills and abilities that seriously hinder performance; opportunities (opportunities) is favorablesituation, various trends, regulations and technological change, while threats (threats) are not advantage situation or obstacle. In conducting a SWOT analysis can be found to the problems that led to the failure present a SWOT analysis. According Salusu (1996), the problem is as follows:

- The missing link problem, or relationship problems loss element that Refers to the failure to connect the evaluation of external factors with an evaluation of the internal factors.
- The blue sky problem, or the problem of blue sky. The decision makers to be too optimistic in view of the opportunities, the which resulted in the Emergence of an assessment of the internal and external factors that does not fit.

- The silver lining problems, decision makers underestimate the influence of the highly potential environmental threats that will be interpreted as a good luck.
- The all things to all people problem, decision makers tendto focus their attention on the weakness and lack of organization see its potential weaknesses power.

The putting the car before the horse problem, adjust the cart before the horse is a reverse activity. The decision makers directly develop strategies and action plans before Determining the wisdom of the strategy of the which will run organization.

CHAPTER III

RESEARCH METHODS

A. Types of Research

Research can be defined as the act of seeing, observing, or seeking. The researchers based on curiosity by researchers in government policy Malang in determining land use policies related to construction of the buildings surrounding at the study sites of Watershed (DAS) Brantas which across Malang City. Due researchers have curiosity about a phenomenon and how the development of the phenomenon, the method of research using quantitative descriptive analysis approach. This study used a descriptive quantitative approach because the data were taken using a number, ranging from data collection, interpretation of data, as well as the appearance of the result (Rosady Rusla, 2003:81). Descriptive research is the basis for all researchers. Descriptive research can be performed quantitatively in order to do statistical analysis (Sulistyo - Basuki, 2006:120). The reason researchers use descriptive research method in this study in order to answer the problem formulation of the curiosity of researchers to abuse irregularities land utilization at watershed(DAS) Brantas from spatial plan. But do not stop at describing it, in this study use a quantitative descriptive study mentioned by some experts, the researcher also sought to identify variables that are strengths and opportunities, weaknesses and threats using linkert scale. This research was conducted to determine the exact position of each of the internal and external factors to translate it into the form of numbers. The purpose of this study is to

describe the actual state of a problem and to know exactly the position of the object of study and measure it with numbers or applicable standards. So it can be said that in this study the research method used is quantitative method.Arikunto (1992) argues that quantitative approach is conducted meticulously and intensively on an institution or symptoms.

B. Research Location

The study is conducted in Malang City which consisting of several villaged that crossed by Brantas river basin. Where watershed (DAS) Brantas is located in the western part of East Java Province circular from the Brantas source on the slopes of Mount Anjasmara and from sloped of Mount Semeru, which later the two met near Malang City. Selection is purposive on acordance with the intent and purpose research. Consideration is Malang City is one of The Brantas river basing drained by rapid population growth rates is naturally good growth and population growth due to migration from one place to another or commonly reffered to as the process of urbanization. These conditions then affect the increase in land use, especially in the watershed (DAS) Brantas. Land use in the region is more likely a function of the area as a residential development both for locals and for Malang migrants or Malang arrivals. Also the site of study was determined on the place or institution which had been provided the accurate and valid data for the researching.

C. Concept and Variable

1. Concept

Concept its mean describe a phenomen abstractly which form by making the generalization of the specifical. The simplify concept aimthe framework by combining of some phenomenons at same general title. The role of concept was important because it as the link between theoretical and observation, between abstract and realities.

The research had two concepts those are watershed and settlement, each concept would be describe as below:

a) Irregularities in the space utilization with the spatial plan its mean its mean that there were the settlement around the area that should not be placed by settlemen because of some reasons. Watershed (DAS) is an area of land that is topographically bounded by the mountain ridges which accommodate and store rainwater for later channeled into the sea through the main river (Asdak, 2004:4). According to that describtion than Malang City could be explaint as the watershed area. As watershed area Malang City had land area that should be protect and especially at the finishing line area which should become protection area. Overvieow of watershed there were the existence of settlement around watershed itself and some settlement occupied the reprarin line. The reparian line that's become the area of settlement would danger not only the environment of nature but also would danger for the people that had their house at reparian line because of same threats such as flood and slide.

b) Strategical direction is part of plan after determine the problems. Strategical direction could be result from swot process after identificated the internal and external environment aspects, than would be find the concept of strategies to arrange the program or policy and also find the strategical direction to optimalization of strengths and opportunities and also minimize the weaknesses and threats.

2. Variable

Variable is one of everythings that could be any form which determined by researcher to learn than could get the information about the term, so direct the conclusion (Sugiyono, 2008:38). The research had four of variables such as; strength, weakness, opportunities and threat.

a. Strengths

The strength is a resource or capability controlled by or available to a firm that gives it an advantage relative to its competitors in meeting the needs of the customers it serves. The research according to description about strengths than the meaning of firm is local government of Malang City, competitors its mean the other local government, and so the customers is society that had their house at Malang City:

- The existence of education facilities sufficient
- The existence of transportation facilities which linked between one area to an other area and also the tourism area
- The existence of infrastructure sufficient
- There were the support from local government and society

b. Weaknesses

Weakness is a limitation or deficiency in one or more of a firm's resources or capabilities relative to its competitors that creat a disadvantage in effectively meeting customer needs. Than the weaknesses as the following:

- The limitation of financial estimate of local government
- Imbalance of total, density and population distribution
- Imbalance of economic between area
- The limitation of the existence of land

c. Opportunities

An opportunity is a major favorable situation in a firm's environment. Than the ooprunities as the following:

- The river potential
- The increasing income of people through the waste management
- The commitment of local government at the important of land planning
- The high application of land use

d. Threats

A threat is a major unfavorable situation in a firm's environment. Threats are key impediments to the firm's current or desired position. Than the opportunities as the following:

- Environment damage
- Natural disaster

- Conflict between activities/sectors at land use
- Dificulities of optimalization land use planning follow the increasing of sectoral and market application

D. Population and Sample

a) Population

According to Sugiyono (2006:72) population is a generalization region which consisting of the objects/subjects that have certain qualities and characteristics are determined by the researcher to be studied and then drawn conclutions. Then in another sense Sudarwan (2007:87) defines population as a universe, in which the universe can be a person, object or are you want to be known by the researcher. In this study population consisted o homeless people who were in the line of river bank and the general public along the Brantas river bain that flows in Malang relevant government also has the authority to regulate land use in Malang City general and land use on Watershed in particular.

b) Sample

Sample or sub - unit is an example of the survey population or population survey itself, which by the researchers considered to represent the target population. Or in other words, the sample is the population elements are selected on the basis of their representativeness (Sudarwan, 2007:89). Samples must truly representative so that researchers do not take that the wrong conclusions.

The sampling in the study the researcher used a purposive sampling method. This is done based on the consideration that the policy does not only involve the actors as policy actors, but also involves those who understand the intricacies of the issues involved. Respondents that called is actor or land users (stakeholders) which consists of 13 members namely; 4 staff Bappeda, 3 staff BLH and 6 staff DPU.

Respondents that defined above are involved directly or respondents are deemed to have the ability and understand well the problems associated with the utilization of the area. According to David (1997), in this analysis to determine the respondent no minimum amount that must be met, all respondents selected are the ones who understand the field she lived. However, as much as number of respondents who are involved, the better to reduce subjectivity.

E. Data Collection

1. Sources of Data

The data is gotten by the two kinds of sources, and it's classified in two, namely:

a) Primary Data: the data obtained from the direct research activity i.e. through respondens by questioner distribution at the site research.

b) Secundary Data: the data obtained from the related institutions in the form of policy documents or records which related with the object study.

2. Data Collection Techniques

At every research there're the data collection activity. The data collection method in the study as follows:

a. Nonparticipants Observation (uncontrolled observation)

In this method the researchers only observe, record what happens. This method is widely used to assess patterns of behavior in the library reference.

b. Quesioner

The questionnaire was structured questions were filled by the respondents or filled by the interviewer that read the question and then record the answers given. Questions will be given on this questionnaire are questions about the facts and opinions of the respondents, while the questionnaire used in this study is enclosed questionnaire, in which respondents were asked to answer the question and answer by selecting from a number of alternatives.the advantages of closed form is easily solved, easily analyzed, and able to provide the range of answers.

c. Structured Interview

Structured interview is an interview by using a list of questions prepared in advance. The same question was posed to all respondents, in the uniform of the sentence and the order.

3. Research Instrument

Research instrument can be defined as a tool or facility used by researchers in collecting data for making easy their job and the better results, in the sense of a more thorough, complete , and systematic and thus easier to be processed Arikunto (2002). The following research instrument used in obtaining research data and information in the study:

1. The researcher: through the observation and the interview related institution environment and documents of the target study.
2. Interview guidelines: interviews conducted by asking a few questions that have been provided previously by researcher. Questions may be submitted directly to the respondents in the form of an attachment or with questions raised as an interview referral.
3. Field Notes: as a means / tool used by researchers in the record all information related to the results of observations andobservations obtained by the researcher during the research process in the field.

F. Data Analysis Techniques

The data analysis which used is Interval Factor Evaluation Matrix and External Factor Evaluation Matrix, SWOT diagram and SWOT Matrix.

F.1 Internal Factor Evaluation Matrix and External Factor Evaluation Matrix

IFE Matrix (Table 2) andEFE Matrix (Table 3) were used to analyse the internal and external factors and classified become the strengths and weakness, opportunities and treats than weighted.

Tabel 2. Internal Factor Evaluation (IFE) Matrix

Key Internal Factors	Weight	Ratting	Score=weight x Ratting
Strengths 1. 2. 3. etc Weakness 1. 2. 3. etc			
Total			

Source: David (1997)

Table 3. Enternal Factor Evaluation (EFE) Matrix

Key External Factors	Weight	Ratting	Score=Weight x Ratting
Opportunities 1. 2. 3. etc Threats 1. 2. 3. etc			
Total			

Source: David (1997)

According to Rangkuti (2000), the stages of identifying variables of internal and external ot IFE matrix and EFE matrix as follows:

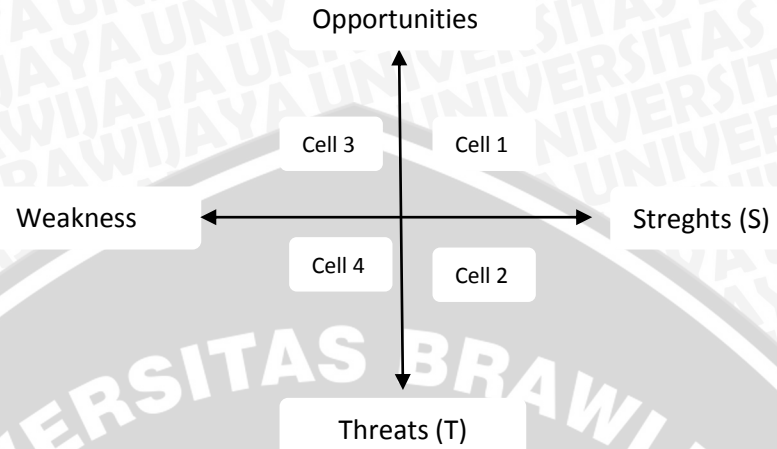
1. Determined key internal factors as strengths and weakness as well as external factors into opportunities and threats (column 1).
2. Gave the weight every factrs on a scale ranging from 1.0 (most important) to 0.0 (not important) based on the factors influence (column 2).

3. Calculating an excellent rating on the IFE and EFE matrixs for each factor to provide a scale ranging from 4 (outstanding) to 1 (porr) to identify major weaknessed, the main strengths, opportunities and threats with the value effect (column 3).
4. Multiplying the weight at column 3 with rattinf at column 3 to obtaind the weighting factor that indicates the value of the influence factor (in column 4).
5. Summing the weight score in column 4 transform and obtain a total score weighting.

F.2 SWOT Diagram

SWOT diagram is the combination between strengths and weakness comparation (represented bt the horizontal line) by opportunities and threats comparation (represented by the vertical line). The diagram, strengths and opportunities were given by the positive marks whereas weakness and threats were given by negative marks.By placing the increment between Strenghts (S) – Weaknesses (W) at x-axis (X), and placing the increment Opportunities (O) – Threats (T) at y-axis (Y), then the ordinate (X,Y) will occupy one cells from SWOT diagram to determine the strategic direction of space utilization.

Figure 3SWOT Digram



Each cell in the SWOT diagram shows the different characteristics, so it requires a different strategy in it use. With SWOT diagram created by the influence of value of the SWOT elements will be formulated form the right strategy (Pearce & Robinson, 1991).

Cell1 (positive, positive): This position indicates a storng organization and opportunity. Recommendations given strategy is progressive, meaning the organization in good shape and steady and it possible to continue the expand, increase growth and achieve maximum progress.

Cell 2 (positive, negative): This position indicates a strong organization, but overcoming great challenges. Recommendations given strategy is diversification strategy, meaning that the organization under conditions of steady but faces a number severe challenges that the organization is expected to have difficulty to continue to operate if only based on the previous strategy. Therefore, organizations are advised to immediately multiply diverse tactical strategy.

Cell 3 (negative, positive): This position indicates a weak organization but unbelievably chance. Recommendations given strategy is change strategy, which means that it is advisable to change the organization of the previous strategy. Therefore, a strategy long feared difficult to capture the opportunities that exist at the same time improving organizational performance.

Cell 4 (negative, negative): This position indicates a weak organization and facing big challenges, strategic recommendations given are defensive strategy, meaning that the internal condition of the organization was on the selection dilemma. Therefore it is advisable to use the organization's survival strategy, the performance of internal control to avoid getting stuck. This strategy is maintained while continuing to attempt to transform itself.

F.3SWOT Matrik

SWOT Matrix is used to describe how the opportunities ad threats facing can be appropriate to describe how the opportunities and threats faced can be adapted to its strengths and weakness which had.

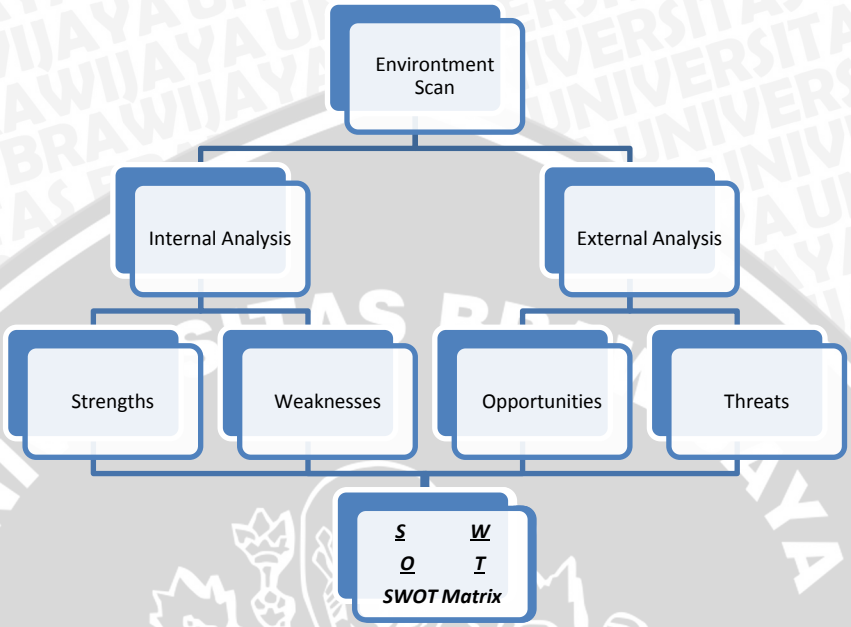
Table4. Matrix SWOT

	Strengths (S) Determine 1-10 the internal variable opportunities	Weakness (W) Determine 1-10 the internal variable opportunities
Opportunities (O) Determine 1-10 the external variable opportunities	SO Strategy Creat strategies that minimize weakness to exploit opportunities	WO Strategy Creat strategies that minimize weakness to exploit opportunities
Treats (T) Determine 1-10 the external variable opportunities	ST Strategy Create a strategy to address the threat to use force	WT Strategy Create strategies that minimize weakness to avoid threats

Source: Rangkuti (2000)

This matrix can be produced 4 possibility alternatives strategies, namely So, ST, WO, and WT. SO strategy is a strategy made by using the whole power to seize and exploit opportunities as possible. ST strategy is a strategy in using force to address the threat. WO strategy is a strategy adopted strategy is based on exploiting the opportunities that exist in a way that minimize the weakness and WT strategy is a strategy that is based on activities that are defensive and try to minimize weaknesses and avoid threats (Rangkuti, 2000).Generally the SWOT Analysis Framework was drawed at Figure 4 where the analysis was done thorugh the envrironment observation included the internal and the external as seem as were been drawed by Kahraman (2008) through these figure at below.

Figure4 SWOT Analysis Framework



Source: Data Processed (2013)

G. Data Valdity

In the term to increasing the rigor according to Hardiansyah (2012,195) was knewn as degree how the data were be representative or describe the real mean and point of view from the subject of research toward the special phenomen, and not as the willings and point of view of the researcher. There were three meters that would be threat and decrease the rigor according to Lincoln Gub awhich had been quoted by Herdiansyah (2012:195-199) from Padget (1998) such as: 1) The involvement related with the involving and presenting of the researcher at the research process, 2) Refractions were sourced from the researcher, than should be keep the researcher's objectivity in the term of collecting data, and 3) Refractions were soruced from the respondent/subject study where usually done

by respondents to cover their weaknees of some of privacy. Once method to prefence the rigor decreasing could be done by the Triangulation Concept, it's used two or more sources which at Herdiasnyah (2012:200-206) said could be through the Theory of Triangulation which suitable be used at the process of collecting data it's the data were been collected not only by interview, but also by document, observation, also with the methodology of triangulation and observer triangulasion. The researcher did triangulation at some of data and theory were been used to investigate/analysis based on the result of data that been collected. Also the observer triangulation were used because the researcher did the research by the researcher it self.

CHAPTER IV

RESEARCH FINDINGS

A. General Discussion of Research Location

A.1 Geography Location of Malang City

Malang City is one of the 37 districts at east java province with total area 110,06 km^2, was placed at plateau between 440-667 metersabove the sea surface and placed in the middle of Malang Regency which in astronomy placed at 112,06° - 112,07° longitudes east and 7,06° - 8,02° longitudes south, with the border administration area as follow:

North: Singosari Subdistrict and Karangploso Subdistrictof Malang Regency

East: Pakis Subdistrict and Tumpang Subdistrictof Malang Regency

South: Tajinan Subdistrict and Pakisaji Subdistrictof Malang Regency

West: Wagir Subdistrict and Dau Subdistrictof Malang Regency

Malang City was knowen as the area with fresh air because of the location that surrounded by mountains, such as:

- Arjuno Mountain at North
- Semeru Mountain at East
- Kawi Mountain and Panderman Mountain at West
- Kelud Mountain at Sourth

A.1.1. Land Topographic and Geologic

Geologically Malang City was contained by rocks as the result of mountain activities that consisted of tufa, tufa pasiran, breccias volcanoes, aglomerat, and lava. Hydro-geologically the accumulation of groundwater in the hollows of Malang City could be seen in a layer of aquifer that could be separated into 3 (three) groups, which is the equifer in the depth of less than 40 m, group of equifer with the depth of between 40-100 m, and clusters of equifer with the depth between 100-15- m based on the quantity and quality of the ground water, the potential of ground water in the hollows of Malang City grouped 4 of area potential ground water, namely:

- High potential area of soil water;
- Meinum potential area of soil water;
- Lowpotential area of soil water;
- Rarepotential area of soil water.

While a type of soil in Malang City there are 4 kinds, among them:

- Alluvial blackish gray with broad 6,930,267 Ha
- Meinteran brown with broad 1.225.160 Ha
- Association latosol reddish-brown grey brown with broad 1.942.160 Ha
- Association andosol brown and grey humus with broad 1.765.169 Ha

Land use in brantas river areas is certainly going to influence the use of land in the brantas river area itself. Nowdays, the land use more tha 50% namely with broad 59,33km^2 for settlement from the total areas 110 km^2, the lowest land utilization for insipid water 0,9 km^2, while the reast land utilization for the others. The details of land utilization in the brantas river area can be seen on a table below:

Table 5 Land Use Broad at Brantas River Areas

Land Use	Land Board(KM^2)
Insipid Water	0,9
Embankment	-
Florest	-
Garden	2,63
Grass field/void land	5,23
Settlement	59,33
Irrigation Farm	18,73
Reservoir rain farm	-
Underbrush	2,61
Unirrigated agricultural field	20,54
Marsh	-
Land sand	-
Beach sand	-
Salt	-
Total	110

Source: Public Work Ministry (2010)

A.1.2. Climatology/Climate

The climate condition of Malang City during the year 2008 was recorded with the average temperature of the air between 22,7°C - 25,1°C.While the maximum temperature reached 32,7°C andthe minimum temperature 18,4°C . Average of air humidity around 79% - 86% with the maximum air humidity 99% and minimum to 40%.Like most other regions

in Indonesia, Malang City followed the climate changes 2 periodes which are rainy season and dry season. From the result of Karangploso climatology station observation high rainfall relatively occurred in February, November, and December. While in June, July, and September relatively low rainfall. The velocity of wind maximum occurred in May, September, and July. Because of the high position, Malang City had cool air with average temperature 24,3°C andair humidity 72% also rainfall average 1.883 milimeterper year.

Table6 Major Weather of Malang City Years 2011-2013

Indicators	Unit	2011	2012	2013
Minimum Temperature	C	17,8	17,1	17,5
Maximum Temperature	C	29,8	30,3	30,3
Minimum Humidity	%	41	43	45
Maximum Humidity	%	100	94	95
Average Humidity	%	76	76	80
Average Rainfall	Mm	139	128	184
Among days of Rain	Day	179	127	189
Average Velocity of Wind	km/Hour	6	8	6

Source: BMKG Karangploso Malang

A.1.3. Government

A city located in the province of east java Indonesia, the city being on upland that is pretty cool was located in 90Km suth of Surabaya City. The Administration area of Malang City consisting of 5 sub-districts with 57 political district administrered by village chief and has 536 Rw and 4009 RT. Malang City had five districts namely; Sub-district Kedungkandang, Sub-district Sukun, Sub-district Klojen, Sub-district

Blimbing and Sub-district Lowokwaru with broad every Sub-district as the table below:

Table7Wide Area Based on Sub-district

Sub-district	Wide Area of Sub-district(KM^2)	Percentage on City Area (%)
Kedungkandang	39,89	36,24
Sukun	20,97	19,05
Klojen	8,83	8,02
Blimbing	17,77	16,15
Lowokwaru	22,60	20,53

Source: BPS Kota Malang

Malang City was known as *"Kota Pelajar"* which supported by the existence of several universities, whether private or state. The condition is inspire Malang City and made it as once of the vision and mission of Malang City, Malang City as the city with quality of education. In deep the explanation of vision and mission of Malang City can be seen on description below.

- **Vision and Mission of Malang City**

  Development that be held by every regional had their own direction, target and also the purpose which had been determined. All of them were been straighted with vision and mission which determined the direction of development at regional and the local government itself. Vision determination was important not only at the first time would begin the program and development activities, but also at the next activites of organization itself. Truthfully form the vision of

organization was determined the future together in the form of pure commitment without any force.

Local government of Malang City at development perform was orientated toward local development program which had been determined include vision of Malang City. Vision of Malang City year 2009-2013 as write down at Local regulation of malang City Number 6 year 2010 about middle period of local development planning year 2009-2013:

> ***"Terwujudnya kota Malang sebagai kota pendidikan yang berkualitas, kota sehat dan ramah lingkungan, kota pariwisata yang berbudaya, menuju masyarakat yang maju dan mandiri"***
>
> *"The realization of Malang City as a quality education, health and environmental friendly, city tourism cultured, forward the modern and independent society"*

The meaning of vision above as follow:

Kota Pendidikan yang Berkualitas,had mean that malang city development was directed to increase the quality of education in the general meaning.

Kota Sehat dan Ramah Lingkungan,had mean that malang city development was directed to create the city become healty and environmental knowledge.

Kota Pariwisata yang Berbudaya,had mean that malang city development was directed to create the malang city as tourism destination with preserve the traditional culture of malang itself.

Menuju Masyarakat yang Maju danMandiri,hadmean that development was performed to create the modern and independent society of malang city.

- **Missionof Malang City**

Mission of Malang City year 2009-2013 as follow:

- Mission 1 : create and develop the quality of education
- Misi 2 : sreate the increasing of society healt
- Misi 3 : create and perform the development which friendly toward environment
- Misi 4 : create the distribution of economical and the central of development in the areas around itself
- Misi 5 : create and develop tourism wich traintional culture
- Misi 6 : create the good public service

Based on the RT/RW of Malang City Year 2009-2029 had been devided the city into 6 part area of city (Red: *BWK/ Bagian Wilayah Kota*):

1) BWK Middle of Malang,included the area of Klojen subdistrict. The prime function for government, city, trade, and sport service, education and observance of religious duties.
2) BWK north of Malang, included the area of Lowokwaru subdistrict. The prime function for education, trade and service, industries (big/middle/small) and also the area of culture tourism.

3) BWK northeast of Malang,includes some sub-district Blimbing. Major function of the terminal, industry, trade and services, education and sport facilities.
4) BWK east of Malang, covering part area of subdistrict Kedungkandang. Major function of office, terminal, industry and sport facilities.
5) BWK southeastern of Malang, covering part area of subdistrict Sukun andpart area of subdistrict Kedungkandang. Major function of trades and services, namely sport centre (gor kenarok) the convention centrem industry, and housing.
6) BWK west of Malang, include some areas of subdistrict Sukun. Major function of trades and services, and education.

A.2. Demographic (Population)

A.2.1. Population

Based on natural growth it can be said that population of Malang City increased every years, recorded in year 2005 total population of Malang City 708.104 with total 397.829 of women and 400.275 men. But the condition continual rise till year 2011 total population of Malang City about 824.858 person with 407.144 women and 417.714 men (Table 8). The population based on sex in Malang City at years 2005-2011 more detail can be seen in some table below.

Table 8 Population of Malang City Based on Sex Years 2005-2011

Years	Male (Person)	Female (Person)	Total (Person)
2005	397.829	400.275	798.104
2006	402.818	404.318	807.136
2007	407.959	404.485	812.444
2008	404.664	411.973	816.637
2009	406.755	414.102	820.857
2010	404.553	415.690	820.243
2011	407.144	417.714	824.858

Source: BPS Kota Malang (2014)

The other thing that is concerned with population is distribution of population. The highest population year 2010 at subdistrict Lowokwaru with total population of 186.013 people. The lowest population at subdistrict Klojen with total 105.907 people. Year 2010 was recorded subdistrict Klojen as once of the highest density with total 11.994 person/Km2 and subdistrict Lowokwaru had the lowest density with 8.231 person/Km2. Malang City had total density about 7.453 person/Km2. While the growth rate at same year the lowest growth rate at subdistrict Klojen about -1,96 and subdistrict Kedungkandang as the highest growth rate with 2,72. It seems this phenomenon in accordance with the development of Malang City that leads to the eastern area. According to the population census in year 2000 the population of Malang City about 756.982 people andat year 2020 increased by 63.261 people, so that over period of 2000-2010 the average population growth each year about 0.86%. (Source: BPD of MalangCity : 2012).

Table9 Population of Malang City based on Subdistrict and Sex Year 2010

Subdistrict	Population of Men (Person)	Population of Women (Person)	Total
Kedungkandang	86.849	87.628	174.477
Sukun	90.217	91.296	181.513
Klojen	50.451	55.456	105.907
Blimbing	85.420	86.913	172.333
Lowokwaru	91.616	94.397	186.013

Source: BPS of Malang City (2010)

Table 10Population Density, Sec Ratio and Population Growth Rate Year 2010

Subdistrict	Population Density (/km2)	Sex Ratio	Population Growth Rate
Kedungkandang	4.374	99,11	2,72
Sukun	8.656	98,82	0,67
Klojen	11.994	90,97	-1,96
Blimbing	9.698	98,28	0,76
Lowokwaru	8.231	97,05	1,98
Kota Malang	7.453	97,32	0,86

Source: BPS of Malang City (2010)

The lates source of data obtained by researcher from Departement of the population and civil registration total population of Malang City on 1st of January 2014 about 845.683.

A.2.2. Education Facillities

The data composition of population based of the regional education can be known the quality of human resources in the region. This's important because human resources were requirement for the region development. It is hoped the existence of human resources can spring sustainable and positive development. The quality of human resources in region can be seen from many human resources skiled in various fied.

These skills can be seen in terms of the quality of education. The composition of population based to level education in Malang City seen in table below.

Table11 Number of School and Number of Student according to Education Level 2012

Category of Level Education	Total Students	Total Schools
Elementary School	76.736	262
Islamic Elementary School	10208	49
Junior High School	25045	90
Islamic Junior High School	4511	26
Senior High School	15456	39
Jumlah Murid MI	2782	15
Concentration Senior High School (SMK)	28989	37

Source: Malang City Government processed (2014)

The number of elementary level/same level student as many as 86.944 sudents.The number of student at junior high school/same level as many as 39.556 students. While the number of student at senior high school/same level as many as 49.227 students (Table 11). This number can be described as follows: sub-district Kedungkandang consisting of elementary school/same level about 18.560 students, at junior high school/same level about 6.581 students, at senior high school/same level about 8.404 students; Sub-district Sukun consisting of elementary school/same level about 18.692 students, at junior high school/same level about 5.911 students, senior high school about 6.713 students;Sub-district Klojen consisting of elementary school/same level about 15.006 students, junior high school/same level about 12.541 students, senior high

school/same level about 17.548 students; Sub-district Blimbing consisting of elementary school/same level about 18.095 students, junior high school/same level about 6.915 students, senior high school/same level about 5.542 students. Sub-district Lowokwaru consisting of elementary school/same level about 16.591 students, junior high school/same level about 7.608 students, senior high school/same level about 11.020 students. Sub-district Kedungkandang has highest elementary school/same level total 75 schools, Sub-district Klojen has highest junior high school/same level total 29 schools, Sub-dstrict Klojen have highest senior high school/same level total 30 schools.

The adequate eduction facilities were owned by Malang City there were many support towards the Malang City development itself. The existence of education facilities especially college or university give impact on the city development either in improvement of economy even able to provide the impact of urban citizen development that is so rapidly. Good condition of education facilities at Malang City can be seen on the number of education facilities both public and private universities that have been available. Malang City has around 30 Universities both public and private universities.

A.2.3. Infrastruture Facilities

- Transportation

The transportation fleet of city or commonly known as "*Mikrolet"* in Malang City this moment os dominated by transport type of minibus that has the capacity of seats 12 people. Such considered to be more appropriate to the condition of Malang City boulevard itself. The *mikrolet* are currently total 1884 with the number of routes 2256 by serving fleet 28 routes. City transport routes linked some areas in Malang City. Society given ease in reach between one an area with the other areas located in Malang City. The highest fleets owned by AH trackage (Arjosari-Hamid Rusin) with the number of fleets that operate as many as 300 fleets, the longest routes owned by HST trackage (Hamid Rusin – Sarangan – Tasikmadu) in 28 km. total trackage year 2008 over 440,7 km. The condition is stable fom year to year. However in year 2009 additions occurred number of new route and trackage because of the terminal relocation toward Hamid Rusin terminal.

Table 12 Long Trackage in Malang City

No	Road Status	2006 (km)	2007 (km)	2008 (km)
1	National Road	20,7	20,7	20,7
2	Province Road	45	45	45
3	City Road	375	375	375
	Total	**440,7**	**440,7**	**440,7**

Source: Dishub Kota Malang (2013)

The transportation need that connect Malang City to the others areas located in Indonesia, Malang City was supported by various transportations. Land transportation Malang City had two terminal are Arjosari and Landungsari terminal and also supported by railroad track that can be taken by people. Malang City had Kota Malang and Kotalama station where are two hooked up with some small stations. As well as bus transportation, train has also supported by the inversities of quality service which could be choice by people from economy class until executive class, such as: Gajayana (Malang-Gambir), Gajayana (Gambir-Malang), Malabar (Malang-Bandung), Malabar (Bandung-Malang), Tawangalun (Banyuwangi-Malang). For air transportation Malang City has airport which supported by Batavia Air (Malang-Jakarta) and Sriwijaya Air (Malang-Jakarta).

- Health Facilities

Health is a the main case for everyone irrespective of particular social class. Among the main necessity for life and settlement environment that the community need one of them is the presence of the availability of adequate healthcare. Notice that with reason has been established wide variety of hospital that can fulfill a need to support public health in Malang City at least there are approximately 23 hospitals that are spread in Malang City.

- Sport Facilities

Support the other of society needs in Malang City has been scattered some sports facilities that can be used for public. Where of them 8 field (IKIP field, Rampal field, Tembalangan field, Taman Gayam field, Armada field, Blimbing field, Dinoyo field, and AL field), 3 Stadion (Stadium Gajayanan, Stadium Luar Gajayanan and Stadium Blimbing), 1 Gor (Gor Ken Arok) and 1 Velodrom (Velodrom placed at Sawojajar).

A.2.4. Poverty Condition

Poverty is the problems that the solving canot be delayed and should be the main priority in regional development goals, especially that happen in cities because poverty is development promble in various field are characterized by unemployed, retard and unuseful. Based on data collected form BPMKKB of Malang City for poverty detail information in table follows.

Table13Percentage of Poverty Population and Poverty Line in Malang City Years 2009-2010

Detail	Satuan	2009	2010
Percentage of Poverty Population	Percentage	7,22	5,90
Poverty Line	Rp/capita/month	249.320	274.863

Source: Kota Malang Dalam Angka (2013)

Table 13 shows the decrease in percentage of the unprosperous families from year 2009 to year 2010. However, there has been an increase in the poverty line based on Rp/capita/month in the same years, this is related to the development of Malang City with all its access.

Table 14 Employment and Unemployment Participation Rate in Malang City Years 2006-2012

Detail	2006	2007	2008	2009	2010	2011	2012
TPAK(%)	67,71	60,47	61,46	60,91	63,81	66,03	64,26
TPT(%)	14,31	11,27	11,14	10,44	8,68	5,16	7,68

Source: BPS Kota Malang (2013)

The amount og employment participation and open unemployment rate from year to year in Malang City (Table 14). Where a decline in the percentage level of open unemployment every years is 14,31% at 2006, 11,27% at 2007, 11,14% at 2008, 10,44 at 2009, 8,68 at 2010, 5,16 at 2011. But increase since 2011 to 2012 from 5,16become 7,68. While the percentage of employment participation highest rate happen in year 2006 as much as 67,71 and the lowest rate employment participation happened in year 2007 as much as 60,47.

A.4. Settlement

Malang City as urban area in general is dominated by built area consisting of housing, a pulic facility and industry. Several the existing of facilities, housing has broad dominated relative to others components of the land. This facility spread upon the downtown which includes sub-district Klojen, sub-inctrict Sukun and sub-district Blimbing. While components land

for farming placed at corner city which includes sub-districtKedungkandang and sub-district Lowokwaru.

A.4.1. House Condition

House of condition in Malang City divided into several categories of them is permanent house, semi-permanent house and non-permanent housed. Every categories has their own characteristics which different form others. Permanent house has wall, cement or ceramics floor, and roof-tile. Different with semi-permanent house has half of wall and half bamboo, the roof from zinc or asbestos which found at small alley. Meanwhile, the nn-permanent has wall from wood or bambbo, had no floor, rooft from zinc or asbestos. Recorded in Malang City there are 166.429 of permanent houses, 18.245 of semi permanent houses, and 4.668 non permanent houses at year 2011 (Table 15).

Table15Division of Permanen, Semi Permanen, and Non Permanen Houses in Malang City Year 2011

Sub-district	House Condition		
	Permanent	Semi Permanent	Non Permanent
Klojen	24.869	5.170	215
Blimbing	30.156	2.983	1.173
Lowokwaru	28.034	473	182
Sukun	35.773	2.897	187
Kedungkandang	47.597	6.722	2.911
Total	**166.429**	**18.245**	**4.668**

Source: Malang City in Number (2011)

Though majority of Malang City population had house with wall and roof from cement or ceramics but some of people had house from bamboo or called "*gedek"* category where a house like the often called

non permanent house be around river. At one location encountered that house walled bamboo only had one room used fro various activities everyday suppose only activities eat and sleep done in the same room. Whilethe researcher right diside the house scenery that looks not living room but directly bed and beside mini kitchen (Figure 5).

Figure 5 Non Permanent House

A.4.2. Clasification of Housing

In some case different between housing with each others.such as the existence of infferences based on the shape or pattern of housing, housing of development history, functions of use, level of welfare of the people and others. Take a look at some of the infferences housing in Malang City can be classified into several (Bappeda:I-18-I31:2012), such as (next page):

A. Formal Housing

Formal housing commonly built by developers. Housing is more neatly arrange consisting of kafling house from which small o exchange for a great house because designed by developers. Beside arrange the neatness of the form of housing itself developers also often outliner several facilities the neighborhood adequate. The presence of facilities and infrastructure, which has been provided by developers often maked an impression of exclusive where a neighborhood housing tent not interaction each others with their environment around them. Referring to the development of education, on the occurrence of industry and more dense Malang City in the central area of the city so that the increased demands housing that is occupied by the developers to develop settlement areas in suburbs. The spreads of formal housing in Malang City at 5 sub-districts, such as: sub-district Klojen (the condition of buildings of formal housing is permanent structur, gap between 0, with KDB 50-90%, KLB 0,5-1,8 and TLB 1-2 floors), sub-district Blimbing (buildingcondition of formal house with gap between buildings 0 , KDB 70-80%, KLB 0,7-1,6 and TLB 1-2 floors), sub-district Lowokwaru (buildingcondition of formal houses with gap between buildings 0 m, KDB 60-90%, KLB 0,6-1,8 and TLB 1-2 floors),sub-district Sukun (buildingcondition of formal house with gap between buildings 0 m, KDB 70-90%, KLB

0,7-1,8 and TLB 1-2 floors), andsub-district Kedungkandang (buildingcondition of formal house with gap between buildings 0 m, KDB 70-90%, KLB 0,7-1,8 and TLb 1-2 floors).

B. Non Formal House

Often non-formal house develops by itself and usually developed by locals without the developers intervening like what happened in formal house. It's because of the housing development done by locals and impact on the presence of form, the condition of being varied, the density of buildings that quite high and less infrastructures. The patterns that are less irregularly with broad kavling varied and inclined to follow a pattern of road network with distribution as follows: sub-district Klojen (buildingcondition is permanent with gap between buildings 0-2 m, KDB 70-100%, KLB 0,7-3 and TLB 1-3 floors), sub-district Blimbing (buildingcondition majority is permanent house but some of them semi permanent house such as at Balearjosari and Jodipan. Gap between buildings 0-2 m, KDB 80-100%, KLB 0,8-2 and TLB 1-2 floors), sub-district Lowokwaru (buildingcondition if permanen house with gap between buildings 0-1 m, KDB 70-100%, KLB 0,7-2 and TLB 1-2 floors), sub-district Sukun (buildingcondition is permanent house with gap between buildings 0-1 m, KDB 80-100%, KLB 0,8-1 and TLB 1-2 floors), andsub-district Kedungkandang (buildingcondition is pemanen house with gap

between buildings 0-2 m, KDB 50-100%, KLB 0,5-2 and TLB 1-2 floors).

C. Flat House (*RuSun*)

Different from formal house and non-formal house which distributed at 5 sub-districts in Malang City, Flat house were only at Political administration area "*Kelurahan"* Kotalama sub-district Kedungkandang. The locaton is former china grave and around the flat there're groupd of low incomer society and are living along river brantas. On establishment of flats reserved for people living around river brantas but in fact only a small part of them that stay at flat house. Further development temporary of flat house in Kotalama is much cause problems both the resident and and society around. Buildingcondition is permanent, KDB 80%, KLB 2,4 and TLB 3 floors.

D. Official House

Official house in Malang City such as military house at Kesatrian street, sub-district Blimbing, state bank official house at west Lansep street at *Kelurahan* Pisang canin, sub-district Sukun and official house of Kasi log at Perumahan Korem street 084/BDJ in *Kelurahan* Bandulan, sub-district Sukun. Buildingcondition is permanent house, KDB 60-80%, KLB 0,6-0,8 and TLB 1 floors.

E. Apartment

Apartment in Malang City such as Inez apartment, apartment at IN street, panjaitan *Kelurahan* Penanggungan, sub-district Klojen, Soekarno-Hattaapartment at Soekarno-Hatta *Kelurahan*Innoyo, sub-district Lowokwaruand Malangapartment, City point apartmentat Jalan Raya Ineng *Kelurahan* Pisang Canin, sub-district Sukun.

F. Slum Area

Slum Areahad the high density of population and building. The spread of slum areain Malang City such as:

- *Kelurahan* Sukoharjo : desity of building as big as 64 unit/ha, majority the building is permanent with gap between buildings 0-1,5 m, KDB sebesar 80-100%, KLB 0,8-2 and TLB 1-2 floors.
- *Kelurahan* Tanjungrejo : density of building68 unit/ha, majority the building is permanent but some of them semi-permanent, gap between buildings 0-1 m, KDB 80-100%, KLB 8-2 and TLB 1-2 floors.
- *Kelurahan* Ciptomulyo : density of building51 unit/ha, majority the building is permanent but some of them semi-permanent, gap between buildings 0-1 m, KDB 80-100% , KLB 0,8-2 and TLB 1-2 floors.

- *Kelurahan* Jodipan : density of building 53 unit/ha, majority the building is permanent but some of them semi-permanent, gap between buildings 0-1 m, KDB 80-100%, KLB 0,8-2 and TLB 1-2 floors.
- *Kelurahan* Polehan : density of building 58 unit//ha, majority the building is permanent, gap between buildings 0-1,5 m, KDB 80-100%, KLB 0,8-2 and TLb 1-2 floors.
- *Kelurahan* Lowokwaru : density of building 75 unit/ha, majority the building is permanent, gap between buildings 0,1-5 m, KDB 80-100%, KDB 0,8-2 and TLb 1-3 floors.
- *Kelurahan* Mergosono : density of building 68 unit/ha, majority the building is permanent, gap between buildings 0-1 m, KDb 80-200%, KLB 0,8-3 and TLB 1-3 floors.
- *Kelurahan* Kotalama : density of building 73 unit/ha, majority the building is permanent gap between buildings 0-1 m, KDB 80-100%, KLB 0,8-2 and TLB 1-2 floors,

A.4.3. The Spread of Squatter Long River

The settlement is around river identical with slum areawhich care less about the limit of river border that allowed for establishingbuilding. The spread of squatter in Malang City among others:

- Sub-districtKlojen:settlement in the riverbanks at *Kelurahan* Rampalclaket, *Kelurahan* Penganggungan, *Kelurahan* Kasin, *Kelurahan* Kiduldalem, *Kelurahan* Oro-oro Dowo,

*Kelurahan*Samaan and*Kelurahan* Bareng. Building condition is permanent but some of them semi-permanentwith gap between buildings 0 m, KDB 100%, KLb 1 and TLB 1-2 floors.

- Sub-districtBlimbing:settlement in the riverbanks at *Kelurahan* Jodipan, *Kelurahan* Polehan, *Kelurahan* Arjosari, *Kelurahan* Balearjosari and*Kelurahan* Bunulrejo. The buildingcondition is permanent but some of them semi-permanen, with gap between buildings 0 m, KDB 100%, KLB 1-2 and TLB 1-2 floors.
- Sub-district Lowokwaru:settlement in the riverbanks at *Kelurahan* Ketawanggede, *Kelurahan* Tlogomas and*Kelurahan* Merjosari. The buildingcondition is permanent but some of them semi-permanent, with gap between buildings 0 m, KDB 90-100%, KLB 0,9-2 and TLB 1-2 floors.
- Sub-districtSukun:settlement in the riverbanks at*Kelurahan* Bandulan, *Kelurahan* Mulyorejo, *Kelurahan* Gadang, *Kelurahan* Sukun, *Kelurahan* Kebonsari, *Kelurahan* Pisang Candi, and*Kelurahan* Tanjungrejo. The buildingcondition is permanent but some of them semi-permanent with gap between buildings 0 m, KDB 90-100%, KLB 0,9-2 and TLB 1-2 floors.
- Sub-districtKedungkandang:settlement in the riverbanks at*Kelurahan* Kotalama and*Kelurahan* Mergosono. The buildingcondition is permanent but some of the semi-

permanent with gap between buildings 0 m, KDB 90-100%, KLB 0,9-1 and TLB 1 floor.

Settlement in the riverbanks certainly has its own problems.Often the problem appears on settlement in the riverbanks among them are the problems associated with the lack of infrastructure and sanitation, clean water and waste. So it doesn not preclude the possibility that some people often use rivers as *MCK* and the condition is getting serious with many people around river banks throw of waste directly into river. Through the researcher observation successfully eternize a resident of being throw of waste in the river, the conditions can be seen at figure below.

Figure 6 Resident Activity ThrowWaste into River

The condition certaintly can be give rise to new problems such as flood, the high cyclonic river could be causing of the erosion which for a long time will be capable of causing landslides at around riverbank that led to the floods in the period that cannot be predicted.

A.4.4. Projection of Housing Necessaries and Backlog

Percentage of the high population growth led to demands for beter place like housing is basic need that cannot be ignored. The need for housing and residential area in a city can be conducted a projection estimates by looking from the population growth in the region. Backlog is the gap between number of houses which had been built with number of houses wich required by population. Backlog happen because onumber of houses which had been built are not comparable with required houses by population. Backlog obtained from many household reduced the number of houses. A projection backlog in Malang City can be seen on table below.

Table 16 Projection Number of Families and Backlog in Malang City Years 2013-2033

Sub-district	**Klojen**	**Blimbing**	**Lowokwaru**	**Sukun**	**kedungkandang**
Total Houses	30.254	34.312	28.689	38.857	57.230
Projection of Families Number					
	Klojen	**Blimbing**	**Lowokwaru**	**Sukun**	**kedungkandang**
2013	34.769	47.411	43.171	53.247	51.524
2018	37.868	52.840	43.623	63.282	60.644
2023	41.243	58.891	44.080	75.208	71.377
2028	44.918	65.634	44.542	71.377	84.011
2033	48.921	73.150	45.009	84.011	98.880
Backlog Projection					
	Klojen	**Blimbing**	**Lowokwaru**	**Sukun**	**kedungkandang**
2013	4.515	17.157	12.917	22.993	21.270
2018	7.614	22.586	13.369	33.028	30.390
2023	10.989	28.637	13.826	44.954	41.123
2028	14.664	35.380	14.288	59.128	53.757
2033	18.667	42.896	14.755	75.927	68.626

Source: BAPPEDA (2012)

Table above reported backlog in year 2033 is 220.916 Families Number (KK) and the highest backlog in sub-district sukun 75.972 Families Number (*KK*) and the lowest Bcklog in sub-district Lowokwaru 14.755 (*KK*). Proection of need houses in proportion balanced houses (1:2:3) in Malang City at every sub-district years 2012-2033 detail can be seen on table below:

- Sub-district Klojen

  Table 17 Projection of Balance Necessaries Houses (1:2:3) in Sub-district Klojen Year 2013-2033

Year / House Type	2013	2018	2023	2028	2032
Big	753	1.269	1.831	2.444	3.111
Middle	1.505	2.538	3.663	4.888	6.222
Small	2.258	3.807	5.494	7.332	9.334

- Sub-district Blimbing

  Table 18 Projection of Balanced Necessaries Houses (1:2:3) inSub-districtBlimbing Years 2013-2033

Year / Houses Type	2013	2018	2023	2028	2032
Big	1.052	1.957	2.962	4.089	5.341
Middle	2.103	3.913	5.930	8.178	10.683
Small	3.155	5.870	8.895	12.267	16.024

- Sub-district Lowokwaru

Table 19 Projection of Balanced Necessaries Houses (1:2:3) inSub-districtLowokwaru Years 2013-2033

Year / Houses Type	2013	2018	2023	2028	2032
Big	290	366	442	519	597
Middle	580	731	883	1.037	1.193
Small	870	1.097	1.325	1.556	1.790

- Sub-district Sukun

Table 20 Projection of Balanced Necessaries Houses (1:2:3) inSub-districtSukun Years 2013-2033

Year / Houses Type	2013	2018	2023	2028	2032
Big	08	983	2.971	5.333	8.140
Middle	0	1.966	5.941	10.666	16.280
Small	0	2.949	8.912	15.998	24.421

- Sub-district Kedungkandang

Table 21 Projection of Balanced Necessaries Houses (1:2:3) inSub-districtKedungkandang Years 2013-2033

Year / Houses Type	2013	2018	2023	2028	2032
Big	0	0	1.234	3.340	5.818
Middle	0	0	2.468	6.680	11.636
Small	0	0	3.703	10.019	17.454

From the result of projection of balanced necessaries houses (1:2:3) sum of the necessary every year like table below:

Table 22 Total Projection of Balance Necessaries Houses in Malang City Years 2013-2033

Year / Houses Type	2013	2018	2023	2028	2032
Big	2.094	4.019	9.443	15.724	23.007
Middle	4.189	8.038	18.886	31.448	46.015
Small	6.283	12.058	28.329	47.173	69.022

Source: Plan result of Bappeda (2012)

A.4.5. The Settlement Problems in Riverbank

The classical problem at riverbank often the ucounsciousness resident to the environmental damage which caused by act of pollution. Among many the act of pollution which is ussualy done anyway by local people who like throw of waste in the river. Throw waste activities undertaken by the citizens can provide the impact is bad for view of the river. In additional to this course of action could result in the unpleasant smeel that may be a threat the environmental damage and also disaste because it will be dangerous when it comes to the rany season where the region of riverbank will be prone to landslide. The settlement problems in riverbank in Malang City can be seen in a clear manner on the table below:

Table 23 Settelement in Riverbank and The Problem

No.	Location	Large (Ha)	Problems
1	*Kelurahan* Klojen Sub-district Klojen	5,3	- Limited of road - Waste - River utilization for *MCK*
2	*Kelurahan* Polehan Sub-district Blimbing	36	- Limited of road - Waste - River utilization for *MCK*
3	Jl. Jaksa Agung Suprapto G.9 kel Klojen Sub-district Klojen	5	- Limited of road - Waste - River utilization for *MCK*
4	Jl. I.R. Rais and Mergan in*Kelurahan* Tanjungrejo Sub-district Klojen	10	- Limited of road - Waste - River utilization for *MCK*
5	Jl. Anggrek *Kelurahan* Samaan Sub-district Klojen	12	- Limited of road - Waste - River utilization for *MCK*
6	*Kelurahan*JodipanSub-district Blimbing	100	- Limited of road - Waste
7	Jl. Mayjend Panjaitan and Jl. Brigjen S. Riyainin*Kelurahan* Penanggungan Sub-district Klojen	75	- Limited of road - Waste
8	Splenind area in*Kelurahan* Kidul Dalem Sub-district Klojen	20,5	- Waste - River utilization for *MCK*
9	Jl. Gajayana Sub-district Lowokwaru	0,5	- Limited of road - Waste

Source: BAPPEDA Kota Malang (2012)

The large of road is one obstacle for people who live in rin along river bank. Besides because of the people build settlements along riverbank condition are not neatly arranged make area utilization for road

construction become narrower. According to Government Regulation No.34 Year 2006 wide a secondary road be required by 3,5 meter. While the real condition in M.T Haryono street road with paving by 2 meter. Consequently limited access vehicle such as car cannot pass way because if occurring between two opposite cars will have trouble feeding and even in a condition of urgency can result in accidents. The road a narrow significant can also seen on settlement in bethek (Figure 7). In other words of this condition has cuased limited acces for residents mobility especially by car.

Figure 7 Condition of Narrow Road and Slope Sharp at Settlement Area

Unavailability of *MCK* common made some people living along the riverbank frequently use the river for daily needs namely from washing clothes, throw poop, take bath and even some of them use water of river that is feculent for consumption. The condition can be dangerous for public health in addition to cause disease of the skin and body it also can pollute and envenom the river ecosystem.

B. Characteristic of Brantas River

B.1 Demographic of Brantas Watershed

Astronomically management area unit of Brantas watershed placed in $7^0\ 01'00''LS - 8^0\ 15'00''LSand110^0\ 30'00''BT - 112^0\ 55'00''BT$. Located in east java province Brantas river across 15 municipality or city having long 320 km and having broad river areas 14.103 km2 which includes 25% of broad east java province or 9% broad java. Geographically limited by strait Madura and SWP Solo watershed in the north, the Indian ocean on the sourth side, sampan-madura watershed o the east and west bordering by SWP of Solo watershed.

Management area unit of the watershed of brantas includes the region by 1.575.285 Ha. Divided into three management areas, namely: the watershed of brantas with broad 1.188.559 Ha (75,5%). The region of the watershed of the southern part of 255.899 Ha (16,25%) andthe region of the watershed of the eastern area of 130.825 Ha (8,30%). Broad include 15 sub-sub watershed namely Sub watershed Lahar, Maspong, Ambang, Barek-Gliink, Ngowo-Ngasinan, and Widas.

People living on river areas brantas about 15,2millionspeople (year 2000) or 43% from the east java province and have density intermediate 1267 people/kM2. Recorded from data possessed by monitoring agency brantas river through department of foresty there are at least the population on each municipality city, the population density year 2007. The full information can be seen at table below:

Table 24 Administration Region, Population and Population Density in Brantas watershed Year 2007

No.	Regency	Wide (Km2)	Population (Person)	Population Density (Person/Km2)
1	Malang	2,979	2,419,822	812
2	Blitar	1,589	1,140,809	718
No.	**Regency**	**Wide (Km2)**	**Population (Person)**	**Population Density (Person/Km2)**
3	Tulungagung	1,046	984,460	941
4	Trenggalek	1,205	687,786	571
5	Keinri	1,386	1,525,231	1,100
6	Nganjuk	1,224	1,065,459	870
7	Jombang	904	1,212,876	1,342
8	Mojokerto	692	1,027,871	1,485
9	Pasuruan	1,151	1,485,342	1,290
10	Sidoarjo	634	1,838,666	2,900
Total		12,810	13,388,322	1,045
No.	**City**	**Wide (Km2)**	**Population (Person)**	**Population Density (Person/Km2)**
1	Malang	110	784,337	7,130
2	Blitar	33	125,689	3,809
3	Keinri	63	255,452	4,055
4	Mojokerto	16	118,464	7,404
5	Pasuruan	35	184,591	5,274
6	Surabaya	326	2,716,971	8,334
7	Batu	93	189,384	2,036
Total		676	4,374,888	6,472

Source: Statistik Balai Pengelolaan Daerah Aliran Sungai Brantas Departement Kehutanan (2007)

B.2 Controllingof Brantas River

Flood Forecasting & warning system (FFWS) flood control perfrmed with the operational of infrastructure building of flood contro (reservoir, embankment, the water and support equipment telemetry, etc), exception on sub-river which did not supported by river flood control building infrastructure. With telemetry equipment which has master control stationin central office of Malang, precipitation and discharge of the whole region of

brantas river(12.000 km2) can be monitored every hour. This data is used to calculate/predict flood distribution and for flood warn at long Brantas river (320 km). Measurement system which using the long place telemeter for water level and rainfall which monitored from Master Station. Telemeter system developed serves as an early warning system and from the data can also used as forecasting flood. The system applied since 1989 used raino frequency as transit media data since year 2008 had been developed by GSM system.Early Warning System (EWS) based as society (*Monitoring Instrumentasi Masyarakat/ MIM*) is instrumentation for flood warn by means of simple technology spread in 19 points along brantas river area and 35 points along bengawan solo river area. Instrumentation it serves give warning information to people will potential flood.

Aspect of water quality and water pollution control assigned to Perum Jasa Tirta 1 is monitoring at 51 points on the monitoring of brantas river and monitoring industrial waste dominant. Result presented in monitoring and evaluation and quarterly periodic (three months and annual) to governments which had and related authorizazion in brantas river.Based on the government regulation number 82 year 2001 about water quality monitoring and water pollution control arthicel 5 and 6, the authorization of water quality monitoring and water pollution control at government in accordance with river classification (over provinces, over regency/cities in one regency/city). Perum Jasa Tirta I actively had rule in the performing of quality water in Brantas river area in accordance with monitoring and controlling the water quality.

Especially brantas river area performed based on the regulation letter of east java province governor number 28 of 2000.

Beside this, control will be done on the source of pollution through the effort to coordination control especially joint with environment broad office (BLH), east java province and actively participate in drafting local regulation about straightly the disposal of sewage liquid. Viewed frome some parameters (*BOD, COD, and DO*), the result of the monitoring year 2007 in the region at brantas river show that condition of the river good enough (*DO*and*COD*meet quality strandards set in the government regulation number 82 year 2001)although level of *BOD*still above the quality standard (Jasatirta, 2014).

B.3 Brantas River Utilization

Brantas river crosse districts into which brantas become important point of the regency. The reason of the existence of brantas river become important, BBWS Brantas built some potential dams a long the stream which having function such as water sources (both agriculture and drinking water) besides used for hydroelectric power tourism. Major infrastructure has been constructed in brantas area, exploited for fulfillment of various need to irrigation, among others water for drinking and industry, a power station, fishery and tourism. The industry which uses water allocation in brantas river area year 2005 is 129 industries. Use water for industrial average volume during the last 10 years (1995 – 2005) are 137,8 juta m^3. The lowest water utilization occurring in 1988 namely 126,52 juta m^3. For domestic urban water needs are met by *PDAM*depends of the population each regions. The

numberof *PDAM* which utilize water from brantas river area in year 2005 are 12 *PDAM* from total of 16 *PDAM.*

C. Data Presentation

C.1 SWOT Analysis

Strategis analysis using SWOT produces two things, namely: 1) variables are the elements of strategy for internal (strengths and weakness) and external (opportunities and threats) that influence toward space utilization, 2) value of the independent variables influences the strategic toward space utilization. Further analysis of the independent variables are the strategy and value of its influence, using SWOT matrix diagrams and generate referral strategy of space utilization.

C.1.1 SWOT Analysis Result of Internal and External Variables

a. Strengths

Malang city has strengths which generally owned in the performing of land use arrangement. The strengths such as resources, skill, and the other relative quality that had been owned by Malang City in the term of space utilization for settlement. Description related to variables of strengths unsure strategic which influence on the space utilization for settlement as follows (next page):

S.1 The existence of education facilities sufficient

According to the regional government commitment listed directly on the vision and mission of its own, namely Malang city become the education city. Through several activities program tutoring and expertise are also some favorite colleges that have been around for several years over the development of malang. The number of educational facilities already available in Malang City based on the level of both categories of public and private. Noted that in Malang City had 30 colleges-level school, 114 Senior high school level, and 126 Junior high school level. Several universities are famous and become favorites, with condition above Malang City deserve its nickname as the city of education. Even with the students educated in universities can be contribute not only on education sector but also give effect on improvement of economy as the surrounding community with the increasing of society that use their home for dormitory which give them income, and the other impact the students necessaries such as restaurants, bookstore and other facilities will give them the others source of income.

S.2 The existence of transportation facilities which linked between one area to an other area and also the tourism area

Malang has *Mikrolet* as the once vehicle that support the Malang public transportation to reach several area in malang itself.

With the wide area of Malang City 110,06 $km^2$and 5 sub-districts was supported by total 1884 *Mikrolet* from total 2256 fleets which accrose 28 route. The route of city transportation which placed at Malang City has been linked once area to an other area in Malang City itself.

Rail transportation sector has been growth 7,65%, highway transportation has been growth 6,88% and the other supporting sector of transportation facilities have been growt 7,82%. The condition showed the improvement of transportation sector with generally so many people use public transportation rather private transportation such as car and motorcycle.

S.3 The existence of adequate infrastructure

Infrastructure is the essential which should be had by capital or the other regin such as city like Malang in acceleration of economic growth. The availability of adequate infrastructure will make the area by many employers or attracted investor to invest their capital. The existence of good infrastructurseems to have been possessed by Malang City, that may be viewed by many investors and developers who glance to Malang City. The conditions can be seen by many developers who built some settelement and as much as stores. Malang city has theavailability facilities, the condition also supported by the opinion of *HPI (Himpunan Pramuwisata Indonesia) Malang Raya*, at Berita Jatim (2014). Explained that

Malang has been have the adequate facilities which can be support the necessaries in the tourism development in around Malang which had several destinations of tourism in Malang itself. The infrastructure related with tourism development most of them had ben owned by Malang such as, Hotel, and especially there is airport in Malang.

Although road infrastructure owned suffivient, but through the observation be known that a result of many immigrants who keepd increasing each year impact traffic congestion at the time of the active studies. The condition of being very different when holiday, see that the road quiet. Understanding the situation currently faced by various improvements done by city government of Malang. In order to develop infrastructure of the result study of literature being carried out by researchers found that is concerned about previous research infrastructure obtained the direction of the town of Malang infrastructure development is realized through strengthening a system of planning city infrastructure; the development of the flow of rivers; improving the quality and quantity of clean water; the development of a transportation system; the housing development and residential; and enhancement of consistency of management development of infrastructure (Purnomowati:2014).

S.4 There were the support from local government and society

Refer to description for river from upstream to downstream that is a water flow across some areas so crashing some boundaries between regions subsisting on a locality. Realize that what happened to the upstream would result in part of downstream of river. Then at a discussion about management river some pretty confident that needed cooperation among some actors and also cooperating among traffic local governments to be separated menegement who bult factor and sustainable. Through management activities integrated in rivers brantas and managemet has supported with some regulation both central government regulation and regional government regulation. Government role iterms related adequate infrastructure available in year 2014 inspectand detail engineering design (DED).

The government role is running his job would not complete without accompanied with support from the community. Through the observation that has been done by researcher see active role of public materialized through various activities between waste management activities performed by some groups being creative economically valuable items and source of alternative energy which centered in Sukun. Cooperation between society also spring needs torugh the rovision of water. *PDAM* which not reach some areas around the city supplied by groups society itself which they made some effort to the fulfillment of the need for clean water.

Activity was named as the provider of water by society (*HIPPAM*). Deeply, researcher interviewed people having a house located along river. Researcher ask to them if local government does want to relocate their house and what their respone. They answer that some of them will support the local government regulation which some condition that they will be given of insentive and also will be placed at better location that support their sustainable life.

b. Weakness (W)

In addition to having strengths, Malang city of course also have the weakness of both the limitation of resources, skills and abilities that are seriously hampered the efoorts f the utilization of space for settelemnt. A full explanation of any such weakness in strategic variables serves as follows:

W.1 The limitation of financial estiate of local government

Fund allocation in the riverbank management and also allocation for build the adequate facilities for settelement around riverbank is important. Although management and maintenance for condition river has submitted his jurisdiction on national instituon cooperate such as PT. Jasa Tirta I. but allocation to build a adequate facilities as required to the province settlement in general fund allocaton is can budgeted through PDRB local authorities.

In some reason local government hasn't able to allocate their budget for built the adequate facilities in several settlement

around riverbank. Finally the differences between settlement which built by society itself especially aournd riverbank with settelement which built by developers was high related with the available facilities. Not few of them can be called as slum area and far for suitable place to be living inside.

W.2 Imbalance of total, density and population distribution

Population growth information is strategic information and was need by some parties. In the teram of determine the regulation anddevelopment planning include the planning of settlement necessaries regulation which determined based on the families growth. Population distribution at period of five years between 2007-2011 in every sub-district can be seen as below:

Table 25 Population Growth (person) based on Sub-district in Malang City Years 2007-2011

Sub-district	Population (person)				
	2007	2008	2009	2010	2011
Klojen	127.489	132.448	126.760	127.145	140.200
Blimbing	170.543	172.923	171.051	171.935	172.333
Lowokwaru	156.960	162.577	181.854	182.794	186.013
Sukun	171.889	176.420	174.868	175.722	181.513
Kedungkandang	172.426	173.358	162.104	162.941	174.477
Jumlah	799.307	817.726	816.637	820.587	854.536

Sourcer: Bappeda (2012)

As known from table above population in Malang City years 2007-2011 increased from 799.307 person become 854.536 person. The higest population in three years continually occurred in Sub-district lowokwaru with ration as follows years

2009:2010:2011 with populations 181.854:182.794:186.013 person. Whereas in five years continue at years 2007-2011 the lowest population occurred in disub-district klojen with ration as follows yeas 2007:2008:2009:2010:2011 with populations 127.489:132.448:126.760:127.145:140.200 person. The condition become imbalance of population distribution if look at the wide areas of sub-district itself. The widest area is Sub-district kedungkandang 39,89 km2 with percentage of the total wide area of Malang City 36,24%. Whereas the narrow areas is Sub-district lowokwaru 22,60 km2 with percentage of total areas of Malang City 20,53%.

W.3 Imbalance of economic between area

Imbalance population distribution will trigger imbalance of economic between areas. Settelement development wich built by developers increase every years, while the increasing also happen in development of settelement at slum area like riverbank and reparian of rail. The big differences when look at the infrastructure which exist at both area. Settelemetn which built by developer support by exclusive infrastructure (such as Istana Bunga Dewandaru at Jatimulyo, Griya Shanta at Tulusrejo, Permata Jingga at Tunggulwulung etc) and adequate but at the slum area are less infrastructure (such as around riverbank at Jodipan Polehan, Tanjungrejo, Bandulan, Mulyorejo etc).

W.4 The limitation of the existence of land

Land is the primer necessaries for the development sustainable. In the effort of development performance become the comfortable area, both for economic and social-culture (place which live the city communities). The city which developing naturally and thorugh the arrangement and planning was faced at some problems to creat the ideal condition for the development purposes necessaries itself. There are three development orientations that should be noticed in the development performance, namely; orientation at the physic development (development orientation, community orientation and conservation orientation (Wikantiyoso, 2009). The static condition of land of course would not be followe the flow of land necessaries every year. The land necessaries would be increase every year.

c. Opportunities (O)

Land utilization for settlemen in the some view has the opportunity codition. The opportunity such as from the preference of regulations, technologu, social necessaries, environment supporting etc. th deep explanation about variables of opportunity strategical wich influence toward land utilization for settelement as follows;

O.1 The river potential

River has some function which can be usefull for social necessaries. In other function of clean water resources river also has other function, such as:

a. River water utilization for irrigation
b. River water potential for water drinking
c. River water utilization as energy resource

Related with the water river potential the information from PT. Tirta Jaya I fro nowdays Brantas river had 9 of water energy resource with capacity installed 274,1 MW. Was told in the same source there are some potential of water energy resources 313,29 MW at 22 points of Brantas river areas. The potential has been identificated since 1998 and continually updated by Perum Jasa Tirta I trhough the feasibility study (FS) at year 2008, 2010, and 2013. Especially at year 2013, was done Review FS and Detail Engineering Design (DED) for 5 points of potentials PLTM andrehabilitation of one PLTMH. Suistanabelity in next years, Review FS and DED would be performing for the other potentials.Total planning of generation capacity 313,29 MW above consisting of potensi Water Electricity Energy (>10 MW) about253,00 MW in 7 points, PLTM (<10 MW) about 59,71 MW in 13 points, andrehabilitation PLTMH (0,1 - 1 MW) which had been built around 0,58 MW in 2 points. Hope form the potential development of PLTA/PLTM/PLTMH is Perum Jasa Tirta I with

other parties can be contribute actively product the electricity which friendly to the environment that resources from the recently energy. The program also guarante the electricity supply in Java Island for the future necessaries. Potentials of generation capacity can be increase as follow as the technology development for the head wich very low< 4 m, that suitable implicated at the irrigation channel.

O.2 The increasing income of people through the waste management

Society that life in riverbank have the usual activities throw the waste to the river. The condition can be effect the appear natural problems. Bad daily activities cand be decreased and in some condition can be erased with waste management which give profit for society itself. Local government of Malang City through the Malang Waste Bank or ussualy called as "*Bank Sampah Malang/BSM*", and society groups had some activities such as empowerment and giving education about waste management and the damage of throwing waste to river. Society was offered the waste become some profit. Waste usefull was done by creat the waste to become the economic creative items. Throught the social groups Malang city resident made waste as once of energy resource which centered at Sukun.

Literature studies from some references recored waste usefull for society also done by young doctor with name Dr. Gamal Albinsaid. He give new hopes for society about healthy through the Waste Assurance Clinic which can be called "*Klinik Asuransi Sampah*". Clinic provide healthy service with waste alternative as the changes items beside money. The exchange through the waste accumulation and change by healthy service. The healthy service such as tention of blood check, diabete check, medicine etc. the environment conservation and society empowernment was appreciated by princes Charles and he got title as The Prince of Wales Young Sustainability Entrepreneur (Fajarbaru:2014).

Waste usefull as once of income resource has been become two direction activities. Firstly waste was used become profit, in other side waste management could decrease the natural pollution. Waste management nowdays become once proud activities of Malang City through Malang Waste Bank as called "*Bank Sampah Malang /BSM"*in Department ofgarden and clean or called as "*Dinas Kebersihan dan Pertamanan*"wich legitimated at November, 15 2011 by *Menteri Negara Lingkungan Hidup* had done some activities related with waste management.

Table 26 Composition of Waste Type in TPA Supiturang

Waste Type	**Totalton/day**	**%**
Organic	**246,85**	**61,50**
An-organic	**154,54**	**38,50**
a. Paper	27,70	6,90
b. Plastic	**70,24**	**17,50**
c. Metal	0,80	0,20
d. Rubber/Leather	3,21	0,80
e. Glass	2,81	0,70
f. Fabric	14,05	3,50
h. Wood	0,40	0,10
i. Others	35,32	8,80
Total	**401,39**	**100,00**

Source: DKP Kota Malang 2011

Market opportunities for waste classified high enough moreover was supported by high technology. Waste classified was sold to small buyers and waste processed was sold to industry or consuments.

O.3 The commitment of local government at the important of land planning

The settlement was built in reparian line had category as low standar of housing with low economic social, and less of

infrastructure and close to unexistince of infrastructure and far from healthy service. The regulation which as under the Law of Indonesa Republic Number 26 Year 2007 about Space Structuring and the other there're also Law of Indonesia republic Number 1 Year 2011 about Housing and settlement which the technical regulation was regulated by local government through *Rencana Tata Ruang Wilayah Kota*. Specially local government of Malang City regulated by Malang City Local Regulation Number 4 year 2011 about *Rencana Tata Ruang Wilayah Kota Malang Tahun 2010-2030,*at artichle 17 Paraghraph (2) was sounded;

"*mengembangkan kawasan perumahan dengan menerapkan pola pembangunan hunian berimbang berbasis pada konservasi air yang berwawasan lingkungan"*

Pasal 48 menyatakan;

Penataan permukiman lingkungan in daerah and baand air Sungai Brantas, Sungai Metro, Sungai Amprong, melalui;

a. *Secara bertahap memindahkan banguan pada wilayah sempadan sungai yang innyatakan sebagai daerah yang rawan bencana, ke Sub wilayah Malang Timur and Tenggara.*
b. *Mengadakan penataan lingkungan permukiman atau peremajaan lingkungan permukiman dengan pola membangun tanpa menggusur terhadap kawasan permukiman yang tidak innyatakan sebagai kawasan rawan bencana;*
c. *Meningkatkan kualitas lingkungan permukiman dengan pola penghijauan kota terhadap kawasan permukiman yang berada in wilayah luar dari sempadan sungai.*

"The development settlement area by adopting a adopting a balance settlement development based on water conservation environmentally"

Article 48:

Settlement arrangement in riverbank Brantas, Metro and Amprong, through:

a. *Relocate buildings in reparian line continuously which called as danger area toward east and southeast sub-area of Malang*
b. *Rearrange settlement area or rejuvenation with the pattern of development without replace buildings which aren't called as danger area*
c. *Improving the quality of environment with green zone in the riverbank*

O.4 The high application of land use

Malang City has total population 894.853 people at year 2011 with additional of urban immigrants both students and employments 300.000 people. Malang City has been developing everydays at every aspect. The development at Malang City will impact to the necessaries of space and land based on the population growth naturaly and people movement and the economic growth. The condition impacted to society with low income and had no economic ability to build a settlement establish and become slum area which built at reparian line river.

Space pattern plan about land utilization at the last year of planning *RTRW*of Malang City year 2010-2030 has become local regulation of Malang City Number 4 year 2011as presented at table below:

Table27Land Utilization Based on Regional Space Utilization Plan (*RTRW*) of Malang City Years 2010-2013

No.	Land Use	Wide (Ha)

1	Settlement/Housing	477,64
2	Tranding and Services	8,07
3	Industry and Tranding	9,23
4	Public Infrastructure and Social	10,15
5	Green Open Space: Road Utility	82,22
6	Dry	64,41
	Total	651,72

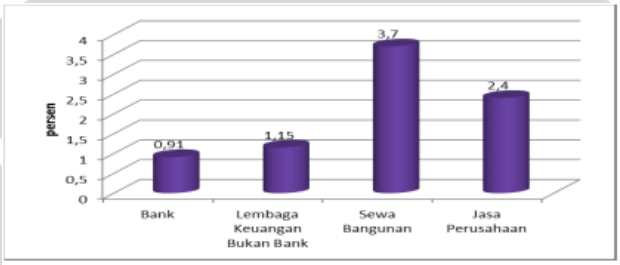
Source: Map of Space Pattern at RTRW of Malang City Years 2010-2010

According to table above has been known that the land use dominated for settlementhousing around 73,1%, while the other land use was functioned for green open space not more than 30% but only used around 12,6% from total land used. The condition has been changing follow the land use application for the other functions. There's possibilities at the last percentage of land use in Malang City would be increase for physical development both settlement and shops.

The much number of urban immigrant in Malang City especially student need dormentory since they studing. The other supported facilities development such as shopping center, economic center, industry center etc. rather become the destiny for tourism, Malang City was placed near Batu City which has some tourism destiny and some people choice Malang City as their stop area for rest and also find gifts. The land potential in Malang City attract some people to build their house and also some potential economic buildings related with tranding of goods and services for offer the customer's demands. The static land and the dynamic

offers of land mad some recorder of the increasing of house rental, banking and Industry service at year 2012 (Figure 8).

Figure 8TheRole and Growth Rate of Banking, Rent and Industry Service in Malang City Year 2012



The high application of land use also can be seen from the number of people ask of license for establish buildings every year. In other the submission of Building establishment were permited by residents, the submission also were permited by developers, such as settlement. The settlement in Malang City that're spreaded in 5 (five) Sub-districts. An every settlement had theirs own style. Most of settelement which built by developers has exclusive and difficult accesed by society round the settlement. It was supported by infrastructure which provided by developers the resident rather choice settlement with privacy access and high security system.

d. Threaths (T)

The lack situation which caused by some aspect such as the technology changes, regulation, environment condition, social aspect etc. the situations could directly or indirectly give threat to land utilization for

settlement in watershed brantas in Malang City. Detail strategical unsures of threats can be seen as follows;

T.1Environment damage

Environment damage is condition which occurred degradation. A speed development occurring in Malang City more inclined to the development of complex housing and settlement and many developments of shop-house and also over function of the forest for farm land. As result from the condition above can reduce the percentade of land absorption and utilization land for forest. The fast settlement and shop-house growth, while in other side the development of green open space stagnant. A groove the development could impact on environment damage where can be perceived of changes in temperature of the air that occurred in Malang City at last few years. Malang City that is famous as tourism city and education city with cool air and become favorite as suitable location for residential nowdays the air didn't cool anymore. Theye are change tend the increasing of temperatures. If Malang City at year 1970 the temperature between 18-22 degress celcius hence temperature of Malang City now could reach up to 30 degrees celcius, even temperature were nearly the same higher with temperature of Jakarta as capital of Indonesia. The concusin can be perceived by the comunitites which the temperature of Malang City not cold as before. Deeply the condition especially in

the afternoon, when the Malang City temperature felt very hot. Environment damage not only led to temperature increasing in Malang City, but also flooded when rain. The incident happened on Friday, 29 April 2013 can be portrayal of environment damage as revealed by yuinanto (2013). The rain picked Malang City with their medium intensity. Although the rain was not high intensity but it has led of flood in Street Veteran in one of the mall in Malang City. Flood occurred has submerged some of road. The most exciting this is when the rain stop, but the flood didn't stop. The condition caused by the lack of drainage system with less of infiltrate areas.

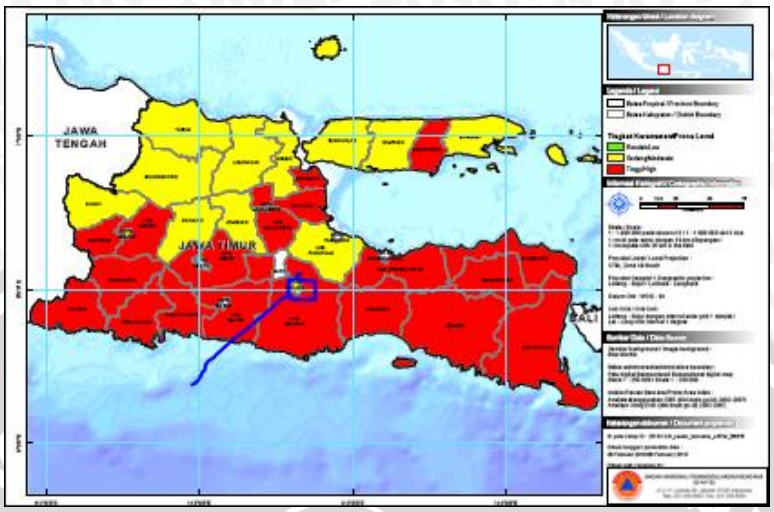
T.2Natural disaster

Malang City was known as area with cool temperatures, because it is surrounded by several mountains, including:

- Mount of Arjuno inNorth
- Mount of Semeru in East
- Mount of Kawi and Panderman inWest
- Mount of Kelud inSouth

Malang City was ringed by mountains ranges and some of them are in active condition and can be one threat. Threat because of the mountains activity can identified as natural disaster. Disaster prone area index could be looked at MAP below:

Figure 9 Disaster Prone Area Index MAP in East Java Province



Refer to mad above Malang City as a city that gristle disaster with medium category. Though Malang City be in medium category its not guarantee th reference of local government doesn't notice natural conditions because basically Malang City be right inside of Malang Regency that in high category in gristle disaster index. Because in some certan conditions natural disaster that hit one location give impact for same around location of them beside that Malang City was placed and ringed by Mountains which has possibility explode at any times which couldn't be predicted.

T.3 Conflict between activities/sectors at land use

Malang city has many attractivess such as The education city "*Kota Pendidikan"* and also as city with cool air temperature because its surrounded by many mountains and has some tourism

destination. Housing necessaries for residents and urban migrants of Malang City are high enough but didn't seem to immediately give a significant impact against the occurrence of land use conflicts. It is associated with a number of landuse is more oftn done by native Malang. Where the most developers needs as well as land utilization for the construction of land dominated by society. The settlement necessaries for residentals and urban immigrants are high enough but didn't seem to immediately give a significanted impact against the occurrence of land use conflicts. It is associated with a number of land use is more often done by native Malang. Where most development needs as well as land utilization for construction of land dominated by society themselves for built dormitory and the rest is for develop commercial house, mostly utilizing land that is next to the road. It's indicate that the occurrence of conflicts in land use can be minimize. The conflict in land utilization are also expressed by one of *DPU* staff, disclosed that bulding establishmenet submission is often done by people themselves, and the graning of submission is done after going through several steps as it has been determined in accordance with the prevailing laws and regulations.

Doesn't close the possibility of investors interest in their activities develop especially settlement establishment that shines

more in Malang City. The price increasing annual but the land is static would appear conflict in the future.

T.4 Difficulities of optimalization land use planning follow the increasing of sectoral and market application

Department of Public Job (DPU) has gained at least more than 100 proposals annually entering related with the submission of building establishment permits for shope-house and others. The conditions its not surprising because considering many investor and developers tried to turn a profit from people interest to have a house in Malang City as second big city after Surabaya at east java province. Beside public interest in establish buildings their interest also in establish shope-house in various kinds needs as shopping centers will generate contribute of the land utilization diversity. The number of land that is spatially remainde is challenge for local government in regulating land utilization and make it appropriate with the development in city which is quite rapid.

C.1.2 Internal Factor Evaluation (IFE-Matrix) and Eksternal Factor Evaluation (EFE-Matrix)

Internal Factor Evaluation (IFE-Matrix) and External Factor Evaluation (EFE-Matix) give possibilities for the strategical planner to calculate and evaluate the economic, social, culture, demographic, environment, law and government etc. The assesment of internal variable (Table 28) and external variables (Table 29) were presented at table below.

The proper assessment of unsures strategical was hopped would be role in land use for settelement in Malang City generally and in watershed brantas in Malang city especially.

Table 28 Matrix Internal Factor Evaluation (IFE-Matrix)

Internal Factors	Score	Rank	Value
Strengths			
1. The existence of education facilities sufficient	0.13	3	0.39
2. The existence of transportation facilities which linked between one area to an other area and also the tourism area	0.13 0.13 0.13	3 3	0.39 0.39
3. The existence of adequate infrastructure			
4. There were the support from local government and society			
Total			1.56
Weakness			
1. The limitation of financial estimate of local government	0.12	2	0.24
2. Imbalance of total, density and population distribution	0.12 0.11 0.13	2 2 3	0.24 0.22 0.39
3. Imbalance of economic between area			
4. The limitation of the existence of land			
TOTAL			1.09
Value Comparison (Strengths – Weakness)			0.47

Source: Primary Data Processed *(2014)*

Table 29 Matrix Enternal Factor Evaluation (EFE-Matrix)

External Factors	Score	Rank	Value
Opportunities			
1. The river potential	0.13	2	0.26
2. The increasing income of people through the waste management	0.12 0.14	3 3	0.36 0.42
3. The commitment of local government at the important of land planning	0.12	3	0.36
4. The high application of land use			

Total			1.4
Threats			
1. Environment damage	0.12	3	0.36
2. Natural disaster	0.13	3	0.39
3. Conflict between activities/sectors at land use	0.12	2	0.24
4. Difficulities of optimalization land use planning follow the increasing of sectoral and market application	0.11	2	0.22
TOTAL			1.21
Value Comparison (Opprtunities – Threats)			0.19

Sourcer: Primary Data processed (2014)

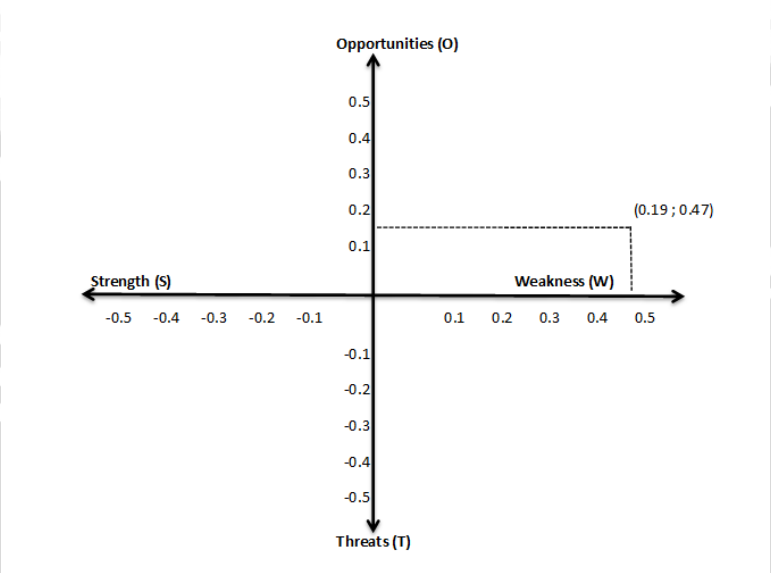
After calculated the primary data than fund the strengths value 1.56 and weaknesses values 1.09. that's mean strengths variables has more influence rather that weaknesses variable with the value comparison 0.47. While opportunities values 1.4 and threats values 1.21.that's mean opportunities has more influence rather than threats with values comparison 0.19. Calculation result could be showed the position of strategical direction from the cuadrant condition in SWOT Diagram.

C.1.3 SWOT Diagramand SWOT Matrik

SWOT Diagram is the combination between comparison both strengths and weakness variables (was presented by horizontal line) with comparison both opportunities and weaknesses variables (was presented by vertical line). At theDiagramstrengths and opportunities was given as the positive mark, while weaknesses and threats was given as the negative mark. Than values position of S – W and O – T in the SWOT Diagram SWOT will

determine the strategical direction of land use. Description can be seen at SWOT Diagram at Figure below, as follows:

Figure 10 SWOT Diagram Land Use for Settlement



Based on the value comparison in the internal variables (Strengths and Weaknesses) is the value comparison from the analysis (1.56 - 1.09 = 0.47), and the value comparison at external variables (Opportunities and Threats) is (1.4 – 1.21 = 0.19). based on the SWOT Diagram, land utilization for settlement in Malang City was placed at cel I. cel I position was showed that the land utilization for settlement has the lucky position because has the opportunities and strengths in this position was needed the Support and Aggressive Strategy. According to Pearce & Robinson (1991), cel I position is indicates a strong and oportunity. Recommendation given strategy is progressive, meaning the organization in good shape and steady. The strategy describe at Matrix SWOT.

Table 30 Matrix SWOT Land Use for Settelement in Malang City

Unsure Internal Unsure Eksternal	**Strengths** 1. The existence of education facilities sufficient 2. The existence of transportation facilities which linked between one area to an other area and also the tourism area 3. The existence of adequate infrastructure 4. There were the support from local government and society	**Weaknesses** 1. The limitation of financial estimate of local government 2. Imbalance of total, density and population distribution 3. Imbalance of economic between area 4. The limitation of the existence of land
Opportunities 1. The river potential 2. The increasing income of people through the waste management 3. The commitment of local government at the important of land planning 4. The high application of land use	- Land use for settlement with useful lof the infrastructure and supported regulations. - Development of settlement areas through the determination of land use allocation based on the land use planning *RTRW* - Give the space for society particaption in the term of waste management for protect and keep the environment that can be creat the living area become friendly with environment	- Dicrease economic imbalance between areasthrough the spread development - Natural resources utilization based on the environment characteristic and supporting
Threats 1. Environment damage 2. Natural disaster 3. Conflict between activities/sectors at land use 4. Difficulities of optimalization land use planning follow the increasing of sectoral and market application	- Land utilization arrangement appropriate with land potential and performance the control of to prevent conflict between activities.	Increasing the coordination between sector in the term of land use and land planning to prevent the conflict and pressure toward the natural resources

Source: Primary Data (2014)

SWOT Matrik describe detail of how the opportunities and threats influence toward the land use for settlement can be appropriated with strengths and weakness which had. SWOT Matrik result 4 possibilities of strategical alternative SO; ST; WO; and WT. Based on SWOT Analysis, can be producted the strategical direction of land use for settlement. The variables Strengths (s) and Opportunities (O) in the land utilization for settlement in Malang City should has high priority noticed, the handling of the variables was hopped without care less toward the available variables of Weaknesses (W) and Threats (T). the effectiveness and comprehensive handling hopped will be increase the role of land utilization, which whould be included at the form of programs. The program that arranged should give high priority at the activities program that used strengths and usefull the opportunity. In other, should be care about the score and values of every variable in the influence the land utilization for settelement.

CHAPTER V

CONCLUSION AND RECOMENDATION

A. Conclusion

Through the research activities that conducted by researcher, than can be conclude as follows:

1) Land utilization in Malang City nowdays most of them appropriate with the land potential. In the data collection that coming from BAPPEDA was fund that irregularities of land utilization for settlement with the regulation. The irregularity occurred in the spread of settlement in riverbank that usually called as squatter. The squatter spread at some sub-district, as follows; Sub-district Klojen (*Kelurahan* Rampalclaket, *Kelurahan* Penanggungan, *Kelurahan* Kasin, *Kelurahan* Kiduldalem, *Kelurahan* Oror-oro Dowo, *Kelurahan* Samaan and*Kelurahan* Bareng), Sub-district Blimbing (*Kelurahan*Jodipan, *Kelurahan* Polehan, *Kel*urahan Arjosari, *Kelurahan* Balearjosari and*Kelurahan* Bunulrejo), Sub-district Lowokwaru (*Kelurahan* Ketawanggede, *Kelurahan* Tlogomas and*Kelurahan* Merjosari), Sub-district Sukun (*Kelurahan* Mulyorejo, *Kelurahan* Gadang, *Kelurahan* Sukun, *Kelurahan* Kebonsari, *Kelurahan* Pisang Candid and*Kelurahan*Tanjungrejo), Sub-district Kedungkandang (*Kelurahan* Kotalama and *Kelurahan* Mergosono). Based on the direction investigation which conduted by researcher fund that the irregularities

of land utilization for settlement also oocure in the land use for settelement long the reparian line such as the settelement at riverbank in Sub-district klojen *Kelurahan* penanggungan and in *Kelurahan* tanjungrejo. As insert the regulation that the determination of reparian line has the function to protect the river ecosystem itself. Than the area inside the reparian line should become the protected area that couldn't be use and built the settlement or other kinds of buildings.

2) After conducted the calculation at every values of variable got the value for Strengths (S) 1.56 and Weaknesses (W) 1.09 its mean that the strengths variables (S) has more influences toward the land utilization for settelement in watershed brantas at malang city with the values comparison 0.47. While for the opportunity (O) has 1.4 andThreats (T) has 1.21. Its mean that opportunities (O) had more influences rather than Threats (T) with the values comparison 0.19. than the result of value differences from SWOT Analysis showed that the land utilization for settelement in watershed brantas at malang city was showed by SWOT Diagram and placed at Cel I. the condition had mean that the land utilization for settelement had strengths and opportunites than the strategy tha should be performed is (SO) strategy that use the strengths and usefull of the availablelity opportunities. That the strategy such as:land utilization for settelement with usefull of the infrastructure and supported by regulations; development of settelement areas through the determination of land use allocation

based on the land use planning (RTRW); andgive the space for society participation in the term of waste management for protect and keep the environment than can be creat the living area with friendly toward the nature.

B. Recommendation

Consider on the result which fund through the research, than researcher can give some advices, as follows;

1) Government should control land utilization which not appropriate with land potential. Especially the control of land utilization in riverbank. Than society wouldn't built the settlement inside the reparian line. For the example relocate the built inside reparian line and provide them the other location which will support their life continously.
2) Develop the strengths and opportunities to maximum land use for settlement in watershed brantas in Malang City withuot ignore the irregularities of land utilization with the land potential. Optimalization land use utilization which appropriate with land use planning that wrote done in *RTRW* of Malang City. While the strategical direction should be considered is usefull of strength with optimalization of available opportunities. The most in the waste management where government involve society at waste processing and create the clean environment and prevent the environment damagebecause of the society daily activities throwwaste into river.

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Attachment 1: Research Questionnaire

QUESTIONNAIRE
ANALYSIS AND STRATEGY LAND USE FOR SETTELEMENT IN WATERSHED BRANTAS IN MALANG CITY

Date :
Nameof Respondent :
Respondent's Position:
Address :
Telp :
Email :
Signature :

The data was used as the research material and the undergraduate thesis arrangement by Lina Maesari Agustina, Student of S1 ProgramPublic Administrative Science, FIA, UB.

Step I
COMPARISON BETWEEN VARIABLES TO DETERMINESCORING OF SWOT VARIABLES

Questionnaire instructions of scoring the strategical unsure Strengths with Weaknesses and Opportunities with Threats that called as paired Comparison between two variables which influence the land utilization for settlement in watershed brantas in Malang City. The method used for assessment of the score every influence variable (Strategy) internal and external.

How to read a comparison is begin from variable on line 1 (the italic letter) to column 1 (print straight), then the variable on line 2 of column 1, and so on a cosisent. To determine the score of each variable is used a a value of 1,2 and 3.

1 = if the horizontal indicators less important rather the vertical indicators

2 = if the horizontal indicators as same as important with vertical indicators

3 = if the horizontal indicators more important rather than vertical indicators

Questionnaire of Scoring the Strategic Strenghts and Weaknesses Which Influence Land Utilization for Settelement in Watershed Brantas in Malang City

Strength : resources, skill or the other relative strength which belong to Malang City in the term of land use for settlement in watershed brantas in Malang City

Weakness : the limitation at resources, skill and the other relative weaknesses which belong to Malang City in the term of land use for settlement in watershed brantas in Malang City

Internal Strategical Indicators	A	B	C	D	E	F	G	H	Total	Score
(A)										
(B)										
(C)										
(D)										
(E)										
(F)										
(G)										
(H)										

Note :

Strengths

A. The existence of education facilities sufficient
B. The existence of transportation facilities which linked between one area to an other area and also the tourism area
C. The existence of adequate infrastructure
D. There were the support from local government and society

Weaknesses

E. The limitation of financial estimate of local government
F. Imbalance of total, density and population distribution
G. Imbalance of economic between area
H. The limitation of the existence of land

Questionnaire of Scoring the Strategic Opportunities and Threats Which Influence Land Utilization for Settelement in Watershed Brantas in Malang City

Opportunities : situation or condition from the preference of regulation and technology and the other relative opportunities which belong to Malang City in the term of land use for settlement in watershed brantas in Malang City

Threats : situation do not support such as technology, regulation etc which belong to Malang City in the term of land use for settelement in watershed brantas in Malang City

External Strategical Indicators	A	B	C	D	E	F	G	H	Total	Score
(A)										
(B)										
(C)										
(D)										
(E)										
(F)										
(G)										
(H)										

Note :

Opportunities

A. The river potential
B. The increasing income of people through the waste management
C. The commitment of local government at the important of land planning
D. The high application of land use

Threats

E. Environment damage
F. Natural disaster
G. Conflict between activities/sectors at land use
H. Difficulities of optimalization land use planning follow the increasing of sectoral and market application

Step 2
Questioner Giving Rank toward the Strategical Unsures of Strengths which Influence toward Land Utilization in Watershed Brantas in Malang City

Instruction:

Rank giving based on the local government ability in the strengths usefull. Rank giving with some point as follows:

4 = if the local government ability in the strengths usefull is very high

3 = if the local government ability in the strengths usefull is high

2 = if the local government ability in the strengths usefull is low

1 = if the local government ability in the strengths usefull is very low

Question

According to Mr/Mrs how the strength influence land use for settlement in watershed brantas in Malang City and give mark (v) at the appropriate value:

No.	Strengths	4	3	2	1
1.	The existence of education facilities sufficient				
2.	The existence of transportation facilities which linked between one area to an other area and also the tourism area				
3.	The existence of adequate infrastructure				
4.	There were the support from local government and society				

Questioner Giving Rank toward the Strategical Unsures of Weaknesses which Influence toward Land Utilization in Watershed Brantas in Malang City

Instruction:

Rank giving based on the local government ability in the weaknesses settlement. Rank giving with some point as follows:

4 = if the local government ability in the weaknesses settlement is very high

3 = if the local government ability in the weaknesses settlement is high

2 = if the local government ability in the weaknesses settlement is low

1 = if the local government ability in the weaknesses settlement is very low

Question

According to Mr/Mrs how the weakness influence land use for settlement in watershed brantas in Malang City and give mark (v) at the appropriate value:

No.	Weaknesses	4	3	2	1
1.	The limitation of financial estimate of local government				
2.	Imbalance of total, density and population distribution				
3.	Imbalance of economic between area				
4.	The limitation of the existence of land				

Questioner Giving Rank toward the Strategical Unsures of Opportunities which Influence toward Land Utilization in Watershed Brantas in Malang City

Instruction:

Rank giving based on the local government ability in the opportunities usefull. Rank giving with some point as follows:

4 = if the local government ability in the opportunities usefull is very high

3 = if the local government ability in the opportunities usefull is high

2 = if the local government ability in the opportunities usefull is low

1 = if the local government ability in the opportunities usefull is very low

Question

According to Mr/Mrs how the opportunity influence land use for settlement in watershed brantas in Malang City and give mark (v) at the appropriate value:

No.	Opportunities	4	3	2	1
1.	The river potential				
2.	The increasing income of people through the waste management				
3.	The commitment of local government at the important of land planning				
4.	The high application of land use				

Questioner Giving Rank toward the Strategical Unsures of Threats which Influence toward Land Utilization in Watershed Brantas in Malang City

Instruction:

Rank giving based on the local government ability in the threats settlement. Rank giving with some point as follows:

4 = if the local government ability in the threats settlement is very high

3 = if the local government ability in the threats settlement is high

2 = if the local government ability in the threats settlement is low

1 = if the local government ability in the threats settlement is very low

Question

According to Mr/Mrs how the treath influence land use for settlement in watershed brantas in Malang City and give mark (v) at the appropriate value:

No.	Threats	4	3	2	1
1.	Environment damage				
2.	Natural disaster				
3.	Conflict between activities/sectors at land use				
4.	Difficulities of optimalization land use planning follow the increasing of sectoral and market application				

Appendix 2: Tabulation of Primery Data

Tabulation of Scoring the Strategical Unsure Strengths, Weaknesses, Opportunities and Threats which influence Land Use for Settlement in Watershed Brantas in Malang City

Responden / Unsures	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
S1	0.153	0.125	0.136	0.116	0.065	0.176	0.174	0.125	0.125	0.125	0.125	0.105	0.105
S2	0.144	0.107	0.127	0.116	0.112	0.18	0.174	0.125	0.125	0.125	0.125	0.105	0.105
S3	0.108	0.143	0.127	0.143	0.112	0.143	0.174	0.125	0.125	0.125	0.125	0.105	0.184
S4	0.099	0.125	0.169	0.125	0.13	0.125	0.138	0.125	0.125	0.125	0.125	0.184	0.105
W1	0.099	0.152	0.11	0.152	0.13	0.116	0.092	0.125	0.125	0.125	0.125	0.105	0.105
W2	0.117	0.116	0.127	0.116	0.14	0.107	0.101	0.125	0.125	0.125	0.125	0.105	0.105
W3	0.135	0.116	0.085	0.116	0.14	0.08	0.083	0.125	0.125	0.125	0.125	0.105	0.105
W4	0.144	0.116	0.119	0.116	0.168	0.08	0.064	0.125	0.125	0.125	0.125	0.184	0.184
O1	0.161	0.135	0.063	0.113	0.109	0.189	0.188	0.125	0.125	0.125	0.125	0.105	0.105
O2	0.125	0.117	0.08	0.132	0.109	0.153	0.17	0.125	0.125	0.125	0.125	0.105	0.105
O3	0.08	0.144	0.17	0.113	0.182	0.153	0.152	0.125	0.125	0.125	0.125	0.184	0.184
O4	0.152	0.099	0.116	0.104	0.136	0.144	0.134	0.125	0.125	0.125	0.125	0.105	0.105
T1	0.116	0.126	0.116	0.132	0.118	0.117	0.107	0.125	0.125	0.125	0.125	0.105	0.105
T2	0.125	0.126	0.17	0.123	0.109	0.09	0.107	0.125	0.125	0.125	0.125	0.184	0.184
T3	0.116	0.126	0.134	0.132	0.108	0.09	0.08	0.125	0.125	0.125	0.125	0.105	0.105
T4	0.125	0.126	0.116	0.151	0.136	0.063	0.063	0.125	0.125	0.125	0.125	0.105	0.105

Table Rank of Strategical Unsures Strengths, Weakness, Opportunities and Threats Which Influence Land Use in Watershed Brantas In Malang City

Responden / Unsures	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
S1	4	3	3	3	2	4	2	4	3	3	3	3	3
S2	4	3	2	3	2	4	3	4	3	3	3	3	3
S3	4	3	2	3	1	4	1	4	3	3	3	3	3
S4	4	3	3	3	2	4	2	3	3	3	3	3	3
W1	2	3	2	3	3	4	2	2	2	2	2	2	2
W2	2	2	2	3	1	3	2	3	2	2	4	2	2
W3	3	2	2	3	1	2	2	3	2	2	4	2	4
W4	2	2	2	3	1	1	3	4	3	2	4	3	4
O1	4	2	2	3	3	1	2	2	3	3	2	3	2
O2	4	3	3	3	2	4	3	4	4	3	4	3	3
O3	3	3	3	3	2	1	3	4	3	3	3	3	3
O4	3	3	3	3	1	2	2	4	3	3	3	2	2
T1	4	3	2	3	2	1	4	4	4	3	4	3	3
T2	2	3	3	3	2	2	3	4	4	3	4	3	4
T3	4	3	2	3	1	2	2	2	2	2	2	2	2
T4	3	3	3	3	1	1	3	3	3	2	3	2	2

Note:

S1 : The existence of education facilities sufficient

S2 : The existence of transportation facilities which linked between one area to an other area and also the tourism area

S3 : The existence of adequate infrastructure

S4 : There were the support from local government and society

W1 : The limitation of financial of local government

W2 : Imbalance of total, density and population distribution

W3 : Imbalance of economic between area

W4 : The limitation of the existence of land

O1 : The river potential

O2 : The increasing income of people through the waste management

O3 : The commitment of local government at the important of land planning

O4 : The high application of land use

T1 : Environment damage

T2 : Natural disaster

T3 : Conflict between activities/sectors at land use

T4 : Difficulities of optimalization land use planning follow the increasing of sectoral and market application