PLANNING SYSTEM ON THE DUTCH AND INDONESIAN MINERAL PLANNING: What is the optimal approach?

THESIS

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by:

DODI JULI HENDRI
RUG: S 1702548
ITB: 25406042

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DEVELOPMENT PLANNING AND INFRASTRUCTURE MANAGEMENT
SCHOOL OF ARCHITECTURE, PLANNING AND POLICY DEVELOPMENT
INSTITUT TEKNOLOGI BANDUNG

AND

ENVIRONMENTAL AND INFRASTRUCTURE PLANNING
FACULTY OF SPATIAL SCIENCE
UNIVERSITY OF GRONINGEN

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Environmental and Infrastructure Planning
Faculty of Spatial Science
University of Groningen

Approved
Supervisors
Date: 2008

Supervisor I	Supervisor II
Prof. Dr. Ir. Paul Ike	**Pradono,SE,M.Ec.Dev.,Dr.Eng**
(RuG Supervisor)	(ITB Supervisor)

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Head of School of Architecture, Planning, and Policy Development
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(Ir. Tubagus Furqon S, MA., Ph.D)

Abstract

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RuG: S 1702548

The study concerns the planning system on the mineral planning based on government and market approach. The case studies are mining policy in the Netherlands and Indonesia. The locus of the study is to analyze the mineral planning system in both the Netherlands and Indonesia from government and market approaches' point of view. To analyze the mineral planning system, several criteria for optimal land use on the mineral planning are needed. Sustainability, justice, and efficiency criteria are used to elaborate the mineral planning system in this research.

The Netherlands, based on its geology, has limited mineral resources and they are distributed unevenly. The richer area is located in the southern part of this country. Governmental involvement on minerals can be seen in shifting of mineral policy in the Netherlands. The shifting in mineral planning policy was based on the issue which faced on excavation activities in this country, interregional and European trans-boundary issue. The regional government functions as authorized institution for granting the excavation permit. The market-oriented approach has shaped the mineral policy in the Netherlands lately rather than government-oriented approach.

Indonesia seems to have no problems in fulfilling its mineral requirements even though not all regions are able to fulfill their material needs. Indonesian geological condition makes this country has variety and huge amounts of mineral resources. Some environmental and investment issues arise regarding mining activities in certain area. The issues are triggered by decentralized governmental systems in Indonesia is not followed by new mining regulation. Based on Indonesian regulation, the local government has authority in ranting permit issue in its local quarrying site. It will be task of provincial government if the mining location is trans-locals and central government will take the responsibility for trans-provincial location. The market approach still becomes orientation of mineral planning policy in Indonesia during the last 30 years.

The sustainability, justice, and efficiency criteria are in analyzing the mineral planning system in the Netherlands and Indonesia. Since the Netherlands has adopted market-oriented in its mineral planning approach, there is declining in sustainability of minerals. The declining is seen from cancelling several parts of the National Structure Plan on Surface Raw Materials which related to attain sustainable minerals. From the beginning, sustainable mineral is not clearly stated in Indonesian policy. The right of landowners to refuse the research of potential minerals in Indonesia is stronger than the Netherlands. From the investment side, the unjust treatment between domestic and foreign company

occur in Indonesia. Otherwise, the similar treatment of mining companies occurs in the Dutch mineral planning. Granting excavation permission in Indonesia is more efficient than the Netherlands. In the Netherlands, it may need more than 10 years to get excavation permission while it is only some month in Indonesia.

Finally, there are some notes for getting optimal mineral planning system for the Netherlands and Indonesia. The study recommends that the Netherlands has to keep its sustainable mineral concept like its previous regulation. The Netherlands has to improve the efficiency in granting excavation permit. Sustainable mineral should state clearly in Indonesian mineral regulation which is never stated before. To encourage the foreign investment, the role of domestic and foreign mining company has to be similar in Indonesia mineral planning.

Keywords: *planning system, mineral planning, government-oriented approach, market-oriented approach, sustainability, justice, efficiency.*

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Preface and Acknowledgement

Working as geologist on mining sub-division in local government of Tanah Datar Regency, West Sumatra Province has inspired to choose mineral planning issue as topic of my research. My interest to this topic has been strengthened since mineral planning as one of lecture contents of Infrastructure Planning courses which presented by Prof. Dr. Ir. Paul Ike. In addition, the International Planning Practice course from Dr. Johan Woltjer gave more complete motivation to take 'mineral planning system' as topic of the research.

The research focuses on analyzing the mineral planning system in the Netherlands and Indonesia looked at from the government and market point of view. This research tries to implement planning theory into practice. Some criteria, which are sustainability, justice, and efficiency, are needed to make deeper analysis. Due to many differences regarding the minerals, especially the resources and the culture, makes difficulties to compare mineral planning system in the two countries. Therefore, the optimal model has to find as a comparative element. As additional, this master thesis is a final part of my study in Double Degree Master Program of Environmental and Infrastructure Planning from Faculty of Spatial Science on University of Groningen (RuG) and Development Planning and Infrastructure Management from School of Architecture, Planning and Policy Development on Institut Teknologi Bandung (ITB).

Limitation of time and data has become difficulties during the research. Hence, I realize that without many supports I will not be able to complete this research. It is almost impossible to acknowledge all those who have supported me in writing this research. Therefore, first of all, I am grateful to Allah SWT for His blessings to finish my study in the Netherlands and complete my research right on time. Then, special thanks to my supervisors, Prof. Dr. Ir. Paul Ike (RuG) and Pradono,SE,M.Ec.Dev.,Dr.Eng (ITB) for giving me many worthy suggestions, directions, comments, corrections, and motivation. I realize that it would be difficult to make a good thesis with limited time without support from them. Many thanks also to lecturers and faculty staffs at ITB and RuG, and UPT Bahasa ITB. My appreciation is for NESO and Local Government of Tanah Datar Regency that have provided opportunities for me to have study in the Netherlands.

I dedicate many thanks to all my friends of Double Degree ITB-RUG 2006 for all precious and amazing moments and motivations. Special thanks are also devoted to all my parents, family and to my lovely wife for their patience and support during my study in Groningen.

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Dodi Juli Hendri

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Chapter 1
Introduction

This first chapter will describe the basic idea of the whole thesis. To illustrate the introduction of this research, this introduction chapter is divided into five sub-chapters. The five sub-chapters consist of background, research problems and objectives, and relevance, research questions, scope of study, and methodology of the research.

1.1 Background

The direction of planning system in one country can be seen from its regulation. Regulation, as a criterion of planning system, is influenced not only by the internal but also the external factor of the country. One example is the globalization issue with the great effect of market-led in the planning system which has changed the policy direction of some countries. This policy includes mineral planning policy not only for developed countries which usually stand as consumers, but also for developing countries as the producers of minerals.

Mineral can not be separated from developed countries because it is used to sustain and expand their established economies (van der Meulen, 2005). The world's demand for minerals is high and the need always increases from time to time (McDivitt and Manners, 1974). The Dutch mineral planning cannot be separated from globalization because this country still needs to import some aggregates. This globalization issue has influenced the Dutch mineral policy which can be seen from the shifting of its mineral planning policy. On the other hand, this country also sell aggregate to its neighboring countries.

For Indonesia, the amount of aggregates is still sufficient for its own needs. The issue of globalization is related to the investment which is needed in this country. Moreover, in the decentralized government system, another rising issue is happening on the regional scale. This issue occurs when some

regencies/municipalities or *kabupaten/kota* could not provide their own aggregates therefore bringing them from other regions (*kabupaten/kota* or province).

The criteria for careful land use are the indicators to look at how optimal the planning system on mineral planning is. It is because some issues in mineral planning come from these indicators. In mineral excavation or exploitation activities, these issues become very crucial, for example environmental issue. Environmental degradation is frequently caused by mining activities (Spooner, 1981). Due to the variety of mineral resources, Indonesia has faced more environmental issues compared to the Netherlands. The recent issue in Indonesia is environmental contamination done by a gold mining company, PT. Newmont, in Sumbawa Island (East Nusa Tenggara Province)[1] and Teluk Buyat, Minahasa (North Sulawesi Island[2])[3]. The environmental issue has occurred since this company waste its tailing containing heavy metal such as Arsenic and Mercuric elements to the sea around its mining operational site.

It can be argued that there is a strong relationship between mineral planning and spatial planning. It is an interconnected relationship. Mining activities are seen as connection between 'regional development and resource management issue' (Spooner, 1981), while spatial aspects are the main field of regional development (Brookfield, 1975). Spatial planning will affect mineral planning and the mineral planning can change spatial planning. When a potential mineral resource is founded in a certain area, the land use of that area will usually be appropriated. If it is seen as economic advantages, the land use statutory will be changed to support it. Land use policy will be changed according to the new use of the land. An example is the potential mineral resource in farming areas. The farming land will be used as a mining area and some will function as settlement areas and also for infrastructures use.

[1] http://www.jatam.org/content/view/478/1/
[2] Celebes Island.
[3] http://www.tempointeraktif.com/hg/ekbis/2004/04/26/brk,20040426-30,id.html

The fact that mineral affects spatial planning can be seen from some regions or cities in many countries, which are shaped by mining activities. American settlements westwards are drawn by metal and coal mining (Warren, 1973). The discovery of huge gold deposit in Alder Gulch in 1863 triggered the people to come into and settle in Virginia City[4]. Coal exploitation in the Dutch colonial period had created the city of Sawahlunto in West Sumatra Province, Indonesia. Non-inhabitant areas were suddenly turning into the focus of development for new mining cities. Buildings and railway were constructed to support the coal mining activities. Timika, in Papua, was founded by gold and copper miners in Erstberg and Grasberg mining activities.

Mining activities harm the environment and impact the resident and property around them (Daniels and Daniels, 2003). The quality of the environment is degraded because it is polluted by chemical element which is used by mining companies in order to obtain certain cut of grade minerals. Mining activities also change the landscape not only on their operation areas but also their surroundings. Many hills and mountains have been cut to get raw materials and salable potential minerals. Top soils become unfertile because they have been thrown away from their place. Underground mining activities caused many tunnels under the earth. Bed-rocks have been crushed to get such potential ores for industry.

It is important to analyze regulation on the Dutch and Indonesia mineral planning to get a broader understanding on the direction of the Dutch and Indonesia planning system in mineral planning. By using the criteria for careful land use, it will give the optimal model of mineral planning system for both countries. Optimal planning system will trigger investors to invest on this sector on one side and save or minimize the environment on the other side. It is a common situation in many counties that the private sector wants to take the role in development. Finally, good investment will trigger the economic activity of the counties.

[4] http://www.westernmininghistory.com/towns/montana/virginia-city

Some researchers have done a lot of research on mineral planning in European countries. The researches have given a presentation in the 1st European Conference on Mineral Planning in Zwolle, the Netherlands (1997), the 2nd conference in Harrogate, United Kingdom (1999), and the 3rd conference in Krefeld, Germany (2002). The proceedings of the conference have also been published to give broader knowledge about the issues faced by the European countries on their mineral planning, such as excavation activities, mineral planning regulation and policy, demand and supply on mineral, environmental issues in mineral planning, the future of mineral planning in European countries.

The type and direction of control which is implemented in a country can be understood from the Act that manages the system (Booth, 2003). In the Netherlands, new Mineral Excavation Planning Policy has been effective since 1st January 2003. The role of government in this Act is to bring back the mineral planning policy condition to 1976 (Ike, 2007).

It cannot be denied that the success of economy in a country will encourage the increasing of infrastructure development, for instance the construction of industry, road or housing, in that country. In other words, the need for minerals is equivalent with the economic increase in a country. The economic development needs materials such as gravel, sand, clay, and cement for building the infrastructure. In developed countries, the consumption of aggregates is between 5 to 10 tons per capita a year (Raynsford, 1999 in Fuchs, et al., 1999).

1.2 Research Problems and Objectives

In the Netherlands, even though the supply of aggregates geologically is enough for hundreds of years (Ike, 1992), it has not solve the problem of mineral yet. The problem of mineral planning due to a number of aggregates is that the minerals are located on some areas of the country and mostly in the Southern part (Ike, 1992). Otherwise, not all the area in this country has potential mineral resources.

Therefore, to fulfill the needs certain kinds of aggregates for construction, the Netherlands still imports from other countries such as Norway and Scotland.

Even though aggregates supply is not problem for Indonesia, similar issue has arisen. To grant permit license for exploiting minerals such as for construction in Indonesia, as long as it is located in one *kabupaten* or *kota* (regency or municipality), it directly becomes the local government's authorities. The fact that not all the regions (*kabupaten/kota*) in Indonesia can fulfill their needs for aggregate, especially big cities like Jakarta, where the aggregate for construction come from its surrounding regions, such as Banten and Bogor, and Pekanbaru which has to import its construction materials mainly from West Sumatra Province.

Another problem is the excavation of raw material in certain areas that will impact to environmental condition. An example is the excavation of material for construction (aggregate). One of the big issues in mineral planning is securing the aggregates supply on one side and protecting the environment on the other side (Grantham, 1997). An example for this is the Netherlands, in which most of the lands are relative flat. The excavation sites will cause ponds and they will be filled with water, which comes from ground water and rain. This environmental issue always arises in excavation activities. The environmental impact will be dealt directly by people who live in the surrounding areas of those excavation activities.

On the other hand, excavation activities will generate multiple effects, such as job opportunities and tax or levies. This condition is also good for economic activities in those countries because it can increase the economic activity. In some European countries, mining activities are the countries' biggest income. Finally, with this huge income, it will create a stable government. Therefore, the sound of market also has its influence in the planning policy of a country beside the political interest and government control.

The purpose of this research is to reach an understanding of the planning system on mineral planning. It focuses on examining the optimal planning system on mineral planning policy in both the Netherlands and Indonesia from government-led (plan-led) or market-led orientated approach based on some criteria (efficiency, sustainability, and justice). The policy of mineral planning system is changing due to its dynamic nature. It is influenced by not only institutional and cultural contexts but also globalization forces.

1.3 Research Questions

The development of this research is based on some research questions:

1. What types of Planning approaches are related to land use planning with regard to the quarrying of minerals?
2. What kinds of criteria approaches can be used for careful land use related to mineral planning?
3. How is the planning system or situation in the Dutch mineral planning?
4. How is the planning system or situation in the Indonesian mineral planning?
5. What is the optimal mineral planning system related to criteria for careful land use planning in the Dutch and Indonesian mineral planning?

1.4 Scope of Study

Since the planning system can be seen from many contexts, it is important to specify which context we are discussing. This context is an important point of view to make sure this research keeps its focus. The focus is on elaborating the planning system on the Dutch and Indonesia mineral planning. It can be understood from analyzing the Dutch and Indonesian mining regulations. This research focuses more on top-down/ centralisation/ government-led and market-led approach on planning system based on criteria for careful land use planning.

1.5 Methodology

In this research two main methods will be used: literature review and case studies. The literature review will describe the concept of possible planning system on

mineral planning, government and market approaches and the criteria for careful land use planning in mineral planning. by means of the case studies the optimal model on mineral planning system will analyze based on criteria for careful land use planning which will be also attained from the experiences of other countries. By using the two methods, it is expected that the concept of optimal mineral planning system based on criteria for careful land use planning can be useful not only on the study area but it can also be used as references for relatively similar cases in other areas.

This research is developed into several methodological stages which are:

1. Literature review

   Literature review is needed to build theoretical base concerning theoretical development. It will be reviewed the literature to build theoretical base concerning theoretical development of top-down/centralisation/government-led and market-led approach on planning system. This review focuses on two significant sources, which are journal articles and selected books.

   For the analysis of this research, it prefers to use indirect data and information from articles, books, internet and other relevant publications rather than direct sources. Therefore, it is not necessary to conduct survey or interview for this research because secondary source can give many actual data that will be needed.

2. Description of criteria for careful land use related to mineral planning

   In this stage, it will select data from literature review to describe criteria for careful land use as indicators on mineral planning from both sides (government-led and market-led approach). It will examine the optimal criteria of the approaches in other countries. The description answers the second research question and provides input to answer the first and the second question.

3. Description of the Dutch mineral planning

   It will select the data gathered from literature review to describe planning system on the Dutch mineral planning. It describes elements of indicators (criteria for careful land use related to mineral planning). The description answers the second research question and provides input to answer the third question and also provides input to answer the fifth question.

4. Description of the Indonesian mineral planning

   It will select the data gathered from literature review to describe planning system on the Indonesia mineral planning approach. It describes elements of indicators (criteria for careful land use related to mineral planning). The description answers the fourth research question and also provides input to answer the fifth question.

5. Conclusion

   In this stage it will build qualitative relations between planning system on the Dutch and the Indonesian mineral planning. Finally it describes the optimal model for the Dutch mineral planning to the Indonesian mineral planning. This stage answers the fifth question of this research.

The research report is divided into five chapters which become the structure of the research (see figure 1.1). Content of each chapter can be described as follows:

Chapter 1 : Introduction

This chapter consists of background, research problems, objective, hypothesis, research questions, relevance, scopes, theoretical framework, and methodology.

Chapter 2 : Possible Planning System on Mineral Planning

This chapter provides theoretical and empirical bases concepts of planning system, government planning or market oriented approach

in mineral planning, based on criteria for careful land use related to mineral planning.

Chapter 3 : The Dutch Mineral Planning System

This chapter addresses planning system and situation in the Netherlands based on criteria for careful land use related to mineral planning.

Chapter 4 : The Indonesian Mineral Planning System

This chapter describes planning system on the Indonesian mineral planning based on criteria for careful land use related to mineral planning.

Chapter 5 : Comparative Analysis

This chapter analyze mineral planning system in the Netherlands and Indonesia planning based on criteria for careful land use related to mineral planning and it will compare the optimal approach with the Dutch and Indonesian mineral planning system.

Chapter 6 : Conclusion and Recommendation

The last chapter consists of research findings and recommendation. It examines the optimal approach on mineral planning for both the Netherlands and Indonesia.

Relationship among chapters is illustrated in **Figure I.2.**

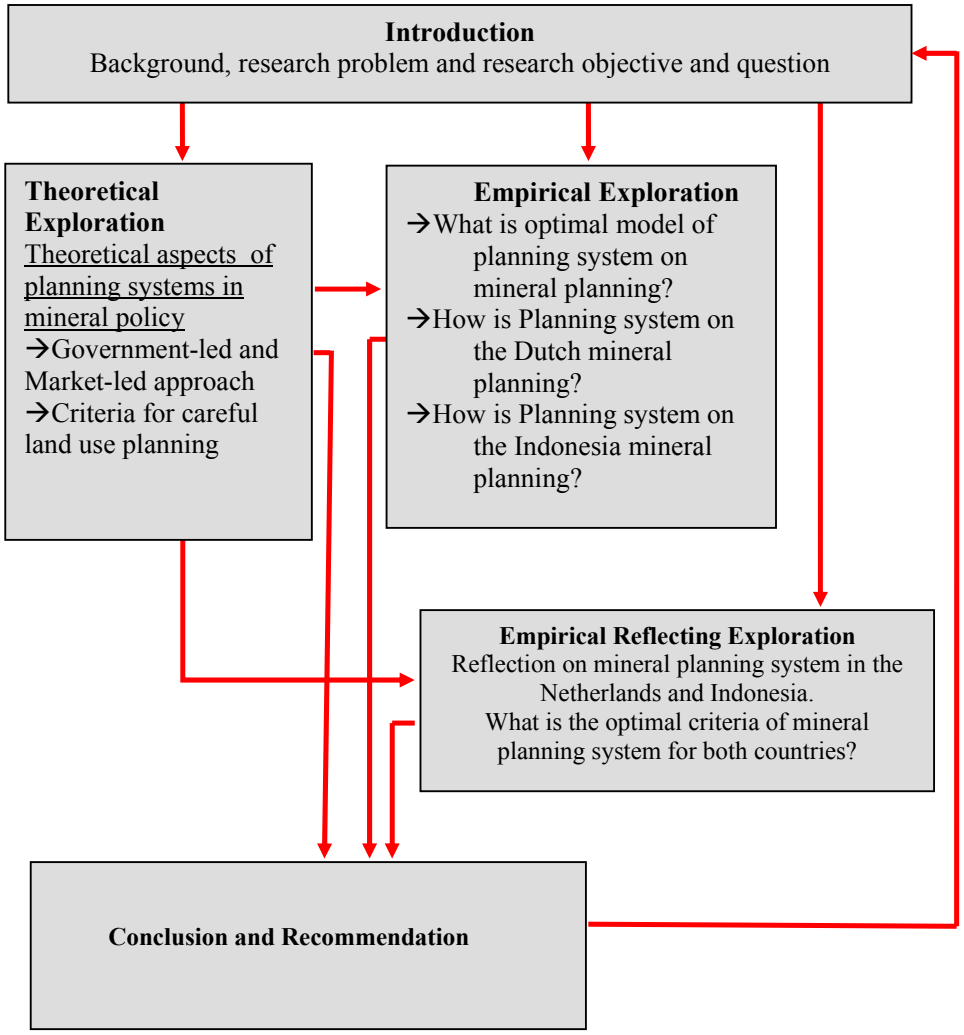

Figure I.1 Structure of the research (Research Framework)

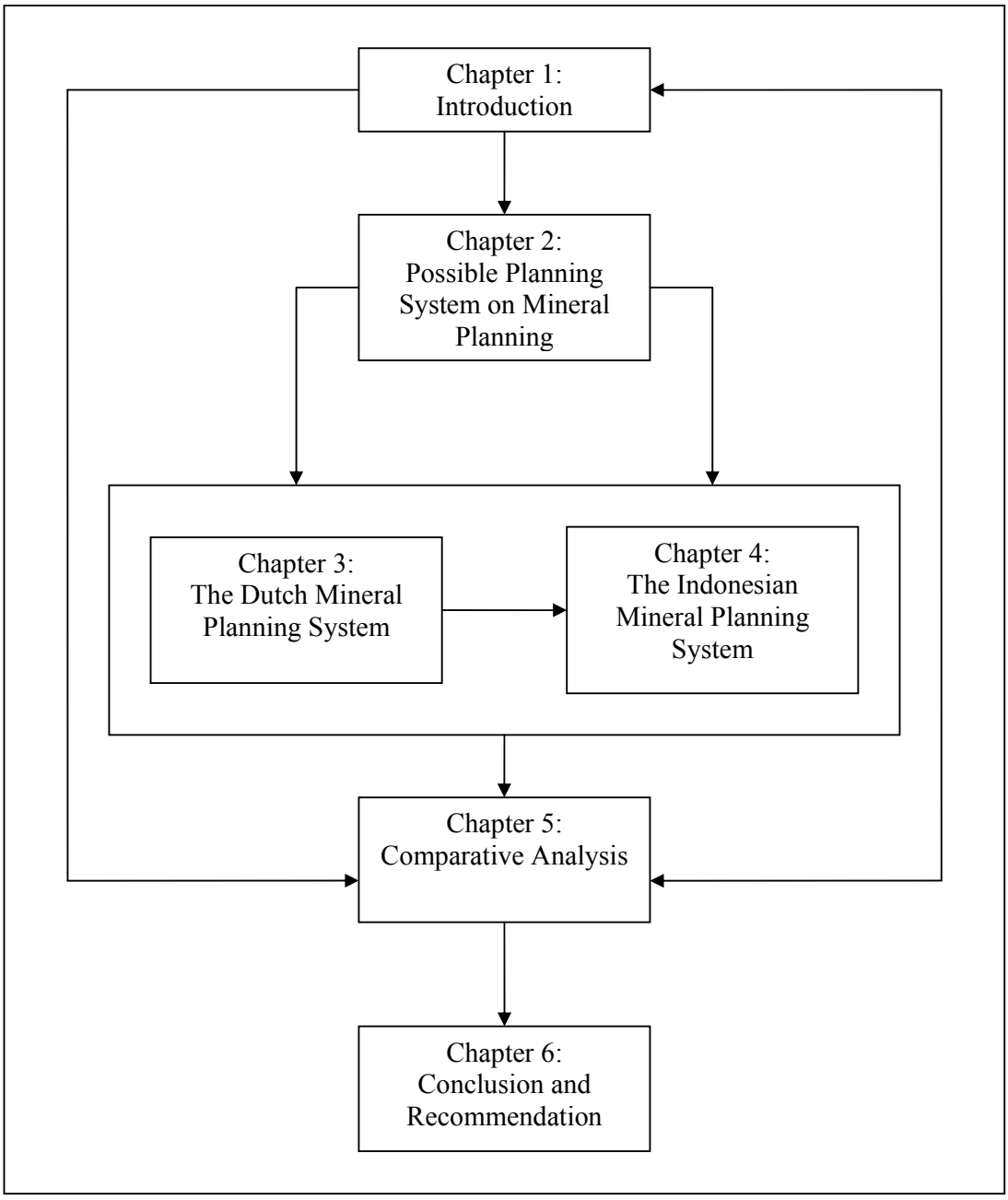

Figure I.2: Research Flow Diagram

Chapter 2
Possible Planning System on Mineral Planning

This chapter will explain several theories regarding the government planning and market approach, market failure and non market failure, criteria for careful land use planning, sustainability, justice, and efficiency concept, and the optimal practice between market and government planning based on sustainability, justice, and efficiency concept on mineral planning.

2.1 Introduction

Planning system in every country is different. It depends on the type of the government and the goal of the planning which want to be achieved of the planning (Healey, 1997). Other different reasons are cultural and climate, legal and constitutional, and the main set of rules from each country (Evans, 2004). Therefore, it does not mean that one planning system is better than the others (Booth, 2003), it is based on the culture and tradition of the country (Healey, 1997).

The similarity of all planning systems is that they have the problem of unpredictable future condition (Booth, 2003). Its condition occurs due to the dynamic change of a country. The problem happens because planning system is the ramification of "*the political, administrative, and legal culture"* which exists in certain countries (Booth, 2003). Booth also points out that this kind of problem which is faced in every country will not be the same.

Planning should be dynamic and able to deal with change (Allmendinger, 2002). The foundation of valuable planning system can be seen from the ability of planning to raise the flexibility (Booth, 2003) because it has two functions which are '*to integrate social and economic planning with spatial development policy and to control land use and development*' (European Commission, 2007).

Planning systems in Europe are divided into five and each of them has a different legal and administrative framework (Balchin et al, 1999). They are British, Napoleonic, Germanic, Scandinavian and East European (Newman and Thornley, 1996, quote in Balchin et al, 1999). The basic element of the differences is how to manage local or region and sharing authority and power among them. The difference of these European planning systems of each framework is contrast (Booth, 2003). Booth also points out that local authorities use their power is the focus of the system (Booth, 2003).

Planning systems in European countries are difficult to combine with the principles of neo-liberal in community (Healey, 1997). Ideally, the central government has to control the system which cannot be handled by the community themselves by means of giving power to local state or government. For example is the Netherlands. Typology of this country is "*unitary state devolving power to the regions*" (Stoker et. al, 1995 and Bullman, 1997, quote in Balchin et al, 1999) and this country is working on giving the authorities to the local government (Balchin et al, 1999).

According to European Compendium (2007), in the European tradition, there are four different types of Planning System in European countries, they are:
First, "Regional Economic Planning Approach". In this case*, spatial planning has a very broad meaning relating to the pursuit of wide social and economic objectives, especially in relation to disparities in wealth, employment and social conditions between different regions of the country/s territory*. In this approach*, central government inevitably plays an important role in managing development pressure across the country, and in undertaking public sector investment.* Countries which used this planning system are Portugal and France.

The second is "Comprehensive Integrated Approach". In this case, *spatial planning is conducted through a very systematic and formal hierarchy of plans from national to local level, which coordinate public sector activity across*

different sectors but focus more specifically on spatial co-ordination than economic development. Denmark and the Netherlands are example of this approach.

The third is "Land Use Management". *In this case, planning is more closely associated with the narrower task of controlling the change of use of land at the strategic and local level.* The United Kingdom is the main example of this approach.

The fourth planning system is "Urbanism Tradition". In this approach, *regulation has been undertaken through rigid zoning and codes.* This approach is usually used by Mediterranean Member States, such as Italy and The Greece.

Looking at its legal and administrative framework, the Netherlands planning system forms Napoleonic system (Balchin et al, 1999). In this planning system, the central government still has strong power and shares certain administrative powers to local or region to minimize the gap between central and local (Leemans, 1970 and Bennet, 1993, quote in Balchin et al, 1999).

Planning system in Indonesia can be categorized as '*incomplete adoption of the integrated-comprehensive approach*' (Hudalah and Woltjer, 2007). According to European Commission, in this approach '*spatial planning is conducted through a very systematic and formal hierarchy of plans from national to local level, which coordinate public sector activity across different sectors but focus more specifically on spatial co-ordination than economic development'* (European Commission, 2007).

In the next section of this thesis, there will be a description of the basic theory of planning system, government-led and market-led theory, criteria for the optimal careful land use for mineral planning, and the optimal model based on the criteria.

2.2 Government planning or market approach

In the last century, all developed countries have the same opinion that in maintaining the development or "planning", such control system should provide the community interest (Booth, 2003). It does not matter whether the control system is public or private institution. Hence, generally there are two types of planning, which are government planning and market planning. Government planning is plans for other people which are made dominantly by government (Sowell, 1980, quote in Lai, 1997). Otherwise, market planning is made by private planner in the firms (Lai, 1997).

Healey sees that planning as a field of policy involves not only system but also practice (Healey, 1997) and planning system walks few steps behind planning practice (Faludi & van der Valk, 1994, in Hudalah and Woltjer, 2007). Most of planning systems start from forecasting the regulations or rules derived their legitimacy from a pre-ordained set of regulations or some kind of zoning that elaborate the way to get permission and bases of controlling its decision (Booth, 2003).

In these decades in many European countries, there is a thought of the scholars that the involving of private is important in government activity (Buitelaar, 2007). Further, Buitelaar states:

> 'More privatisation, more market, less bureaucracy and fewer rules are phases that can be hard on a regular basis in almost every democratic country." (Buitelaar, 2007: 2).

According to Escobar in the nineteenth century in European history, the involvement of new economy is one of current planning elements (Escobar, 1992, quoted in Lai, 1997). Lai points out that current economy are non moral, politic, and cultural activity (Lai, 1997). Policy in economic is aimed to take advantage of the product value based on legal way, method, and administrative arrangement (Coase, 1988, quote in Lai, 1997).

The question to examine is when and where the planning system and control managed by market and non-market planning situation. Chris Pickvance (1977), states that it depends on the sharing in the system.

> If the allocation is very different then physical planning is a powerful force in urban development; but if the allocation is very similar then market forces determine land use despite the existence of the planning system (Pickvance, 1977 in Paris, 1982:70).

The more powerful approach that influences the planning system can be defined by elaborating the direction of the rule.

> The relative role of the public and private sectors refers to the extent to which the realisation of spatial planning policy is reliant on public or private sources, and the extent to which development might be characterised as predominantly plan-led or market-led (European Commission: 35)

Market Failure or Non Market Failure?

The debates between promarket and progovernment have been an interesting issue among the scholars since the early of 20th century. Pro-market view sees that perfectly competitive market is important for the economic both microeconomic and macroeconomic. It is more efficient to achieve the perfectly competitive market if the market itself handling the economic activities rather than handled by government (Wolf, 1993). This idealized model is supported by many mismanage of nationalized company, such as corruption. Inefficiency of government boards in doing their big organization also become target to criticise the government. Therefore, there are many pressures to reduce government involvement in the market arena (Macleod, 1998). This model is ascertained the fact that many countries in which strong government intervention come through the fail economic record. The examples are the developing countries and former Soviet Union, East Germany, and Eastern Europe countries (Wolf, 1993 and Macleod, 1998).

Anti-government or market planning is proposed by 'public choice theory' which assumes that 'political agents' tend to look for themselves' profit (Pennington, 1999). Public choice theory sees the failure of government (planning) from both 'demand and supply' side. On the demand side, the failure of government is

caused by lack of the impetus for community to watch their 'elected representatives' (Pennington, 1999). The high cost to monitor becomes an obstacle for the community to monitor their elected representatives' duties. From the supply side, the government failure is caused by the period of politicians as representatives and '*monopoly function planning bureaucracy*' (Niskanen, 1971, 1995; Tullock 1977, in Pennington, 1999 and Klosterman, 1985). The fear that the politicians will not be elected on the next election and other party will have the power, make government planning will not give benefit for them. Otherwise, strategic planning will be effective if the time is longer than the election cyclic time (Pennington, 1999).

On the other hand, pro-government assumes that efficient and good government is the best manner to answer the disability of market failure and also become democratic way to attain national goals (Wolf, 1993), and it become a reason for government intervention (Cowen, 1992). The market failure Market is assumed as trigger of negative market externalities such as pollution and noise. A fact of this idealized model is the welfare economic of Scandinavian countries and the Netherlands after World War II in which the government has strong rule for economic activities in those countries.

In fact, the perfectly competitive market as eminent term of pro-market environmentalists impossible to be attained without government role. It is also approved by Pennington (1999):

> 'Consequently, economic life is characterized by a high degree of uncertainty and to a large extent the future is unknowable—it is not even possible to know what we do not know'(Pennington: 46).

As additional, Klosterman (1985) clearly states:

> '….competition between formal and informal groups pursuing a range of divergent goals and interests is assumed to place all important issues on the public agenda, guarantee that no group dominates the public arena, maintain political stability and improve individuals' intellectual and deliberate skill' (Klosterman: 7).

The ones which are able to accumulate and enjoy the resources are only those with great economic power because those groups have the ability to take control of market due to their finance, information, and also their relationship to the authority organization. Even though perfectly competitive market can be achieved, Klosterman argues that there are four issues that need government intervention, those are: public goods consumption, externalities, prisoners' dilemma condition, and distributional issues, therefore the government is needed to supply of public goods, diminish the externalities, and coordinate to attain optimal goals (Klosterman, 1985).

The Anti-market standpoint is supported by the theory of market failure where this theory disjoints the weakness of the market when it is faced with public condition such as public goods, information, externalities (Wolf, 1993 and Pennington, 1999). Hence, government intervenes by its rules and guidance to remedy the weakness due to achieving welfare economics.

Even though economic condition is uncertain and cannot be predictable, Pennington (1999) is positive that market will be able to solve it because competitive process of fair market will encourage for getting information which important to forecast the economics. As addition, Pennington (1999), there are three important reasons why planning should be in market's hand, those are:

1) markets have these positive characteristics that they have no close substitutes
2) the alternative of action by the government is so sensitive to the institutional shortcomings that should be avoided where possible
3) there are often market solutions to land use problems, it thought that the land use problems should only be provided by the state.

2.3 Criteria for Careful Land Use Planning

Before determining criteria of careful land use planning, it is important to know the goal and objective of land use planning. According to Evans (2004), the objective land use planning is to plan the use of land in a broader meaning. What

is meant here is all aspects of planning which are related to the use of land, such as land use planning, environmental planning, mineral planning, town and country planning, etc. Due to its broader concept, some criteria are needed to limit and extent the objective of the land use planning, including land use planning for mineral planning.

The Royal Society and the United States National Academic of Science (1992) states:

> "World population is growing at the unprecedented rate of almost 100 million people every year, and human activities are producing major changes in the global environment". (Atiyah, M. and Press, F., 1992)[5]

Therefore, according to United Nations Population Fund (UNFPA, 1992) in 2050 the world's population will be predicted about 10 billion people.[6] This number of people is one element in changing and finally, damaging the environment. The human activities, such as developing urban area, building the infrastructure, housing, and the most necessary factor, mining activity, become the trigger of the environmental degradations in last century. This environmental damage is done through '*environmental decisions of individuals, civil society, and the state*' (Adger, W. N., et al., 2003).

As mentioned above, there is a strong relationship between land use and population, economic activity, and environment. Economic efficiency, environmental effectiveness, and justice become the issue in environmental decision and these can reach various analyses of decision makings (Adger, W. N., et al., 2003). Issues regarding social justice and sustainability become crucial issues lately (Haughton, 1999). Efficiency and justice are determinant factor for managing the basic resources (Chakravorty, 1999). In making careful land use planning, these elements become important criteria (Evans, A.W., 2004). Furthermore, they can develop into issues of justice for people, economic efficiency, and sustainability. In careful land use planning for mineral planning,

[5] http://dieoff.org/page7.htm
[6] idem

the balance among sustainability, justice, and efficiency is needed because these three criteria have strong relationship. Sustainability can be achieved with efficient usage of mineral based on justice for all involving stakeholder.

2.3.1. Sustainability Concept

Even though it is not a new issue, the concept of sustainability has influenced every aspect of development nowadays. Sustainability concept has been accepted broadly in the whole policy of development. This concept is not only embraced by each level of government bodies and organizations in a local, regional, national or state but also international organizations (Gibson et al, 2005, Ring et al., 1999, Hardy and Llyoyd, 1994 in Ring et al., 1999,) and General Assembly of the United Nations stated sustainability function as reference "to identify how relationships among people, resources, environment and development could be incorporated into national and international policies" (Mitchell, 2002).

The common definition concept of 'sustainability' or 'sustainable development' is stated on the statement from the World Commission on Environment and Development (WCED), also known as the Brundtland Commission. Sustainable development is defined as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987 quoted from Mitchell, 2002). This concept reflects not only environmental aspect but also broader to economic and social aspects of development and its integrations among these three pillars of sustainability.

The concept of sustainability is not binding in a detailed *blueprint* or *fixed state* for implementing but it is rather a *"pathway"* for people from in each region to every country to create viewpoint of policies and practice (Mitchell, 2002, Ring et al., 1999). It depends on resources in every country whether the country has plenty or limited resource. Another reason is because ecological, economic and social systems are always unstable or changed (Ring et al., 1999). Therefore,

sustainability is not 'one set of characteristics and requirement' (Gibson et al, 2005) but it indicate goal for all policy (Ring et al., 1999).

The principle of sustainability or sustainable development is that using the basic human needs by present generation should not hamper future generation needs. WCED (1987) states that sustainable development concept is based on two ethical decision: *for intergenerational equity between future and present generations and for intragenerational equity with respect to people and localities of the present generation* (WCED, 1987 quoted from Ring et al., 1999). Mitchell (2002) argues that sustainability is used both for the present and future generation functions to integrate economic, environmental and social considerations into *'every planning and management'* in formalizing policies, laws, regulations and institutions (Mitchell, 2002). In other words, sustainability has become a baseline policy makers in establish every decision that seems to affect desirable future generation. Gibson et al (2005) states the conditions for planning, decision, and follow-up:

> *'Any planning, decision and follow-up process that aims for contributions to sustainability must surely be comprehensive and integrative, critically attentive to purposes and alternatives, appreciative of uncertainties, and apply firmly, widely, openly and efficiently'* (Gibson et al, 2005:36).

Requirements are needed as indicators to achieve the sustainability. Gibson, et al. (2005) determines basic assessment for sustainability. There are eight points as '*a minimal set of core requirement'* (Gibson et al, 2005), those are:

1. *Socio-ecological system integrity*
2. *livelihood sufficiency and opportunity*
3. *Intragenerational equity*
4. *Intergenerational equity*
5. *Resource maintenance and efficiency*
6. *Socio-ecological civility and democratic governance*
7. *Precaution and adaptation*
8. *Immediate and long-term integration*

Sustainability of Minerals

Definition of sustainability of mineral can be elaborated from the definition of sustainability stated by Brundtland Commission. Foster (1999) defines sustainability of mineral extraction as "*promoting activities that will not compromise the ability of future generations to meets their raw-material needs*" (Foster, 1999 in Fuchs et al., 1999). Seeing from mining company viewpoint Placer Dome defines that:

> "*sustainability means the design, construction, operation and closure of mines in a manner that respect and responds to the social, environmental and economic needs of the present generations and anticipates those of future generations in the communities and countries where it works*".

According to Shield and Solar (2000), there are some principles in implementing sustainability concept in mining and mineral resources. These principles not only consider basic principles of sustainable development but also environmental and socio-political aspects. For a detailed overview can be seen in table II.1:

Table II.1. Principles of Sustainable development (SD) and it's relevancy to mining and mineral resources.

Basic SD Principles	**Environmental SD Principles**	**Socio-political SD Principles**
- Human needs paramount/ satisfaction of basic human needs - Integration of environmental and development - Intergenerational equity	- Keep within the Earth's carrying capacity - Non-exhaustion of natural resources - Minimize the depletion of non-renewable resources - The precautionary principles - The polluter pays principles - Eco-efficiency - Full costing - Environmental Impact Assessment	- Public participation in governance/cooperation - Multi-stakeholder approach/partnership - Communication and education - Consensus building process - Increased regulation - Institutional capacity - Democratic self-determination - Sovereignty over resources

Source: Shields and Solar (2000).

In achieving sustainability in the mineral extraction, Van der Moolen (1999) recommends seven elements for government and politicians in making the decision (Van der Moolen, 1999 in Fuchs, 1999), those are:

1. *Legitimacy: is a certain way of thinking about the world with its own logic. A policy aiming at sustainability will have to merit and acquire legitimacy through good result and by various democratic process;*
2. *Steering capacity: means sufficient political power to give society a certain route;*
3. *Policy-relevant information: means that there should be agreement, by subject, on what information needed to make decision on concerning sustainable development based on mineral aggregates;*
4. *Recycling; 5. Renewable minerals; 6. Synergy between various goals in society should be given high priority;*
7. *Restoration Process.*

2.3.2. Justice Concept

Definition of Justice commonly adopted from John Rawls definition. Rawls (1999) states that:

> *"the primary subject of justice is the basic structure of society, or more exactly, the way in which the mayor social institutions distribute fundamental rights and duties and determine the division of advantages from social constitution"* (Rawls, 1999:6).

Here, what mayor institution from Rawls' understanding are 'the political constitution and the principal economic and social arrangement'. Rawls argues that the way to emplace the principle of right and duties on the economic chance and social condition among the society is the form of 'social scheme justice' (Rawls, 1999) because justice is ideal truth condition morally of something, including thing and human. Being first virtues of human activities, truth and justice are uncompromising (Rawls, 1999).

Justice concept can not be separated from sustainability viewpoint, where sustainability is balance interrelation among economic, environmental and social approach. Base on sustainability concept, we can determine that economy should

be put on the right track. According to Hooft (1999), economy should take care of environmental resource as its resource basic on a secure level. The interaction between the economy and the environment must take place at a rate compatible with the need to maintain the capital base (Hooft, 1999). Sustainability economy concept "*reflects a norm of distributive justice*" constant over the years (Hooft, 1999).

A good society can be achieved if the regulation is run based on justice norm (Rawls, 1999). According to Rawls (1999), there are two conditions to achieve it: (1) everyone realizes and agrees with the same principles of justice, and (2*) 'the basic social institutions generally satisfy and are generally known to satisfy these principles'*. But this well-ordered condition is rarely found in existing societies. Rawls argues agreement with these principles is difficult to be achieved (Rawls, 1999). It is easy to understand because concept of justice for each person is different.

According Rawls (1999), there are three determinant factors to indicate concept of justice. Rawls mentions these factors as 'fundamental social problem' to achieve 'viable human community'. These fundamental social problems are coordination, efficiency, and stability. The issues of efficiency, coordination and stability can be affected by conceptions of justice's distinguishing role, which is to indicate fundamental right and duties. Moreover, it also needs to settle on the suitable portion all of these (Rawls, 1999).

The notion of justice, which is a part of the political idea of justice, has an important role to identify the impartiality of social cooperation (Rawls, 2001). Society's basic structure encompasses its principles of justice in which free and rational people, who want to pursue their own needs, would accept in the early position of equality when the basic terms of their association is identified. The importance of the principles mentioned previously is to control future agreements; moreover the principles also identify the possible social cooperation to join into

and the forms of government to be founded. This kind of concept is called 'justice as fairness' (Rawls, 1999). The initial position of equality corresponds to the state of nature within the traditional theory of the social contract in the concept of 'justice as fairness.' Furthermore, this initial position is not a part of the genuine state of affairs and even not as the cultural primordial situation (Rawls, 1999). The basic idea of the 'principle of fairness,' a concept introduced by John Rawl, is the contribution of 'fair share' to the continuing advantage, which is enjoyed due to 'the cooperative efforts of others' (Barry, 1995)

Brian Barry (1989, 1995), in theory, explicitly distinguishes justice theory with three models of justice, those are: 'justice as impartiality, justice as reciprocity' and 'justice as mutual advantage' approach. In justice as impartiality approach, '*people should not look at things from their own point of views alone but seek to find a basis of agreement that is acceptable from a general point of view*' (Barry, 1989). The background thought behind justice as impartiality is values of one parties can be accepted because they are reasonable, otherwise, parties can reject only an unreasonable proposal.

Different with the first approach, in justice as mutual advantage the idea is '*that the just outcome should represent for both parties a gain over what they would have acquired from a continuation of the conflict*' (Barry, 1989). Its idea will present efficient outcomes which mean that one can not be made better off without other being made worse off. Hence, the parties will come with the same prescription that they support their decision of their bargaining interests. In this approach, to carry out into practice depends on the official judgment or rule.

On the third approach, justice as reciprocity, Barry states that '*the criterion of justice is that any mutually advantageous deal that is agreed on is to be deemed just-exactly as in the theory of justice as mutual advantage*'(Barry, 1995). The difference is about the definition of fairness. In this approach, the fairness means that every party should get the same amount of advantage. It is more individual

viewpoint, where everybody thinks about the same profit with other to attain the justice. Nobody will get below or above the others' profit. Hence, like other approach, if all parties consider it is a justice, they should obey it.

Justice of Minerals

The principles of justice to be followed directly by associations and institutions within the basic structure we may call principles of local justice (2001).

John Rawls (2001) proposed three levels of justice. Sequentially from '*inside*' to '*outward*' are local justice, domestic justice, and global justice. They can define as:

- Local justice: principles applying directly to institutions and associations.
- Domestic justice: principles applying the basic structure of society.
- Global justice: principles applying to international law.

Justice as fairness is a political conception of justice for the special case of the basic structure of a modern democratic society (2001). It focuses on the political (in the form of the basic structure), which is but a part of the domain of the moral (2001).

Justice in mineral can be classified as local justice because it is associated with institutions and associations. Therefore, the requirement of justice of minerals can refer to indicators of political equity which proposed by Robert A. Dahl (2006), those thresholds are:

1. The distribution of political resources, skills, and incentives.

2. Irreducible limits on time.

3. The size of political systems.

4. The prevalence of market economies.

5. The existence of international systems that may be important but are not democratic.

6. The inevitability of severe crises.

2.3.3. Efficiency Concept

According to Merriam-Webster's dictionary, *efficiency* is defines as:

(1): effective operation as measured by a comparison of production with cost (as in energy, time, and money) and (2): the ratio of the useful energy delivered by a dynamic system to the energy supplied to it (http://www.merriam-webster.com/dictionary/ efficiency). In economics term, efficiency or called as *pareto optimality* is defined commonly as '*maximation of aggregate consumer and producer surplus*' (Pindyck& Rubinfeld, 2001). Browning and Zupan (2002) detail the definition of economic efficiency from allocation of resources. They states: *'an allocation of resources is efficient whent it is possible, through any feasible change in resource allocation, to benefit one person without making some other person, or persons, worse off'* (Browning & Zupan, 2002).

There are some conditions on the efficiency of competitive market (Pindyck& Rubinfeld, 2001):

1. *Efficiency in exchange: all location must lie on the exchange contract curve, so that every consumer's marginal rate of substitution of one good with another is the same.*
2. *Efficiency in the use of inputs in production: all input combinations must lie on the production contract curve, so that every producer's marginal rate of technical substitution of labour for capital is equal in the production of both goods.*
3. *Efficiency in the output market: the mix of outputs must be chosen so that the marginal rate of transformation between outputs is equal to consumers' marginal rates of substitution.*

Huisman and Huurman (2004) distinguishes two models of economic efficiency, those are the neoclassical theory on productive efficiency (proposed by Harberger, 1954 and Farrell, 1957) and X-efficiency (proposed by Harvey Leibenstein, 1966). Neoclassical theory on productive efficiency opines that to achieve efficiency should be done by maximizing output and minimizing production cost.

X-efficiency, a term coined by Harvey Libenstein, is internal efficient condition of the firm which will trigger as multiplier effects for obtaining other efficiency. This efficiency is set by '*behavioural decision-making efficiency gains'* (Huisman and Huurman, 2004).

Farrell argues that there are two source of productive efficiency; they are technical and allocative efficiency. Technical efficiency is reached if the input that used for producing the output is less than needed. Allocative efficiency can be obtained if consumers' willing to pay of output of goods or services the same with their production cost (Huisman and Huurman, 2004).

Efficiency of Minerals

Efficiency can signify better economics; therefore, it becomes a very helpful criteria for economic. Welfare economics not only handles efficient usage of resources, it also examines if the market distribute the recourses between the rival users to make sure the maximum welfare is attained (Vohra, 1992). Equity and efficiency are undoubtedly the central issues in a resource allocation problem. Efficiency and distributional equity are two broad criteria for measuring market outcome (Wolf, 1993). Efficiency is usually articulated in the sense of Pareto. If another allocation that is generally favored does not exist, an allocation is said to be Pareto optimal or Pareto efficient (Vohra, 1992).

Efficiency in the mineral planning could be seen from the applying of permission. The length of time, long administration process, and the amount of financial that must be paid are the components of efficiency that could not be separated. On the one side, the length of time that is needed to grant an excavation permission of the mineral will be influential to the amount of money that must be paid by the mining company. The longer the time process for getting excavation permission, the more money that must be spent by this mine company.

On the other side, the longer the administrative procedure that must be passed through, like more permission that must be granted, result in increasingly the length of time that was needed to grant that permission. Indeed, the company must pay for the official and staff, rent of the land, capital that was spent to operate the activity, etc. Nevertheless, the profit from the excavation of this mineral will be got after the company begin to sell its mineral production to the market.

2.4 The Optimal Practice, Market or Government Planning?

2.4.1 Sustainability

One of the aspects of sustainable mineral is how we look at the resource in the long term perspective (Rasmussen and Jacobsen, 1998) because we do not know how much the next generation needs it and how many generations will use it. We just have to realize that our next generation will need the mineral. On the other hand, we need to use the resource today in the most economical ways to get and improve the profit from business of mineral.

According to Rasmussen & Jacobsen, 1998 and Cowell, 1998, there are some basic principles regarding the sustainable use of mineral (in Moolen et al., 1998):

- Do not use quality-materials to lower quality purposes (make pattern of development less 'primary-material-intensive';
- Increase recycling of raw materials;
- Use of waste as substitutes for natural resources;
- Efficient use of the natural resources by utilising any extracted material;

For sustainability criteria, mineral planning should be dealt by government-led planning. An example is the extraction of raw material in Denmark before 1972 period. Before this period, there were no regulations on mineral extraction. Hence, there are no limitations to exploit the raw material. Landowners or users could exploit or extract the raw material from their land (Rasmussen and Jacobsen, 1998 Moolen et al., 1998,) that is why many mineral were being exploited in the country sides or rural areas. Since 1972, when the Raw Materials Act is regulated

by Government, mineral extraction is included in regional planning process and run by the County Council as regional planning authorities. This era was the beginning of the government-led in mineral planning. Since this period, every excavation of raw material should have a permit from the regional planning authority before exploiting. Before the location of potential deposit of raw material is exploited, there should be a guarantee that the important resource which is permitted to be exploited will not be reduced and has to be sustainable. The government is needed to monitor the exploitation activity, manage and ensure the sustainability of mineral.

2.4.2 Justice

Conflict occurs in planning the exploitation location due to scrambling and competition for scare space of site (Kuiper, 1998 in Moolen et al., 1998). Conflict arises because the mineral extraction location is conflicted with other functions, such as environmental use. One of the forms of justice contribution is compensation, because it engages in reducing social uneasiness due to mineral extraction. As Kuiper mentions:

> 'however, by using environmental compensation the external effects of mineral extraction can be internalised in the cost, which the mineral operator has to make and the mineral operator could perhaps be forced to do something back for the negative effects'. (in Moolen et al., 1998:210)

When justice or fairness on mineral planning is on government's hand, the government with its authority will be able to provide the compensation regulation. Compensation principles can play its function if intervention is permitted (Kuiper, 1998 in Moolen et al., 1998). The agreement of certain amount of compensations will become the precondition for companies to get a permit licence for exploiting raw material. This regulation will give a guarantee and compensation to grass-root community. The government can also force the firms to pay the compensation (polluter pay) and if this could not be fulfilled, the permits will be revoked. With its tiering of government from national to local, the government will able to control the distribution compensation fairly.

While the compensation is not handed by government, the companies with its profit oriented will not give compensation for the public. They will not distribute the justice equally due to their willingness and the limitation. Market oriented is how to get maximum profit for the companies and compensation is negative externalities for them because it reduces the profit.

Another form of justice in mineral is the fair treatment of stakeholders by mineral planning regulation. The same treatment for all involved stakeholders such as investors and the excavation location become the indicator in applying justice in mineral planning. Respect of land owner and community surrounding is also an indicator. Therefore, the government's role is needed to have a broader authority in the regulations and also to give exploitation permit (Ike & Woltjer, 1995) and intend to protect all the interests involved in mining activity (Kuiper, 1998 in Moolen et al., 1998).

2.4.3 Efficiency

In mineral planning, efficiency can be applied in permit licence for raw material or mineral extraction. Efficiency of mineral is inseparable with the sustainability of raw materials. An example is a statement by UK government about the sustainable approach in mineral in which sustainability of mineral is focused on increasing efficiency in using reduction of waste materials (Bate, 1998 in Moolen et al., 1998).

The main principle of efficiency is how to reduce negative cost. Generally, economical efficiency is defined as the cost to produce a unit of good at the lowest possible cost. In general, there are three types of efficiency; those are cost, time, and administration. Wolf (1993) argues that efficiency can be increased by knowledge and technology. Therefore, for this condition, private or market will have ability to extent the efficiency due to their knowledge of market needs.

When quarrying permit is proposed, mineral companies will spend their money for many items such as buying or renting the land, market observing, labours and employments, office facility, etc. The companies hope their assets will give benefit soon. If they can get mineral or mining permit which is issued by government faster, they will do mineral operation soon. Hence, they can increase economics related to mineral trade and its spill over effects.

Mineral permit is usually issued by government board in government-led planning needs farther than market. It should follow many bureaucracies' administration and permits. For example is land use and environmental permits before proposed mining permits. Sometimes it needs years or event tenth year to get the permit. The mineral or mining companies will lose time of operation and the directly will lose the money due to static invest and labour wages or employee salaries.

From sustainability, justice, and efficiency criteria, the best planning system for mineral planning can be concluded as table II.2:

Table II.2. The optimal planning system on mineral planning

Criteria	Government-led	Market-led
Sustainability	+ + +	+
Justice	+ + +	+ +
Efficiency	+	+ + +

Based on conclusion

+ + + = better, + = less

Chapter 3
Planning System in the Dutch Mineral Planning

Due to the limited resources in the Netherlands, fulfilling the demands of aggregate minerals for construction materials become the main issue in this country. The issue become more crucial because many rejection from community regarding the impact of excavation materials in their area. The mineral planning policy aims to solve this problem. This chapter will elaborate minerals in the Netherlands regarding its mineral resource, its aggregate minerals supply and demand, its mineral planning from national to regional level, and sustainability, justice, and efficiency of mineral planning in the Netherlands.

3.1. Mineral Resources

Approximately, 99% of the Netherlands which has total area 41,526 km² (18.41 % consist of water)[7] is structured by unconsolidated sediments and commonly it consists of sand and clay. These sediments were formed in quaternary age or about younger than 1.8 million years. Based on historical geology, they were formed from the South and the East to the North Sea, in the delta of some main rivers (the Eems in the North, the Rhine, IJssel and Meuse in the middle and south-east, and the Scheldt in the Southwest). During the quaternary, sediments from the Ardennes and the Alps were transported in huge amount of quantity through these rivers. The uplift of the Ardennes in the South-East of this country caused mountainous land with the highest hills up to 300 metres above sea level. Hence, most Cretaceous age's rocks such as limestone and Carboniferous rocks can be found in this area. Limestone of the Cretaceous age can be found on the extreme south and the Triassic age is found on extreme east of the country (Ministry of Transport, Public Works and Water Management, 2003).

[7] Source: http://en.wikipedia.org/wiki/Netherlands.

Figure III.1. Simplified geological map of the Netherlands (after: Veldkamp, NITG-TNO, 2002) in Road and Hydraulic Engineering Institute (DWW), 2003.

The Dutch subsoil has huge potential raw mineral resource for construction. It can be said as unlimited due to almost all the country consists of river sediment such as fine sand and clay because it is located on the estuaries of river Rhine, Meuse, and Scheldt. Unfortunately, the coarser sand only is found in some area in the eastern and southern part of this country. Beside these types of materials, large quantities of limestone, gravel and silica sand the resources, even though less than for sand and clay are also can be found (Ministry of Transport, Public Works and Water Management, 2003).

Table III.1: Known reserves for surface raw materials in The Netherlands for 1 January 2000 and 2001 (from: LCCO/WIG2000, December 2001 in Road and Hydraulic Engineering Institute (DWW), 2003.

Raw Material	Reserves per 1-1-2000	Reserves per 1-1-2001
Coarse sand	119.5 Mt	73.9 Mt
Gravel	15.0 Mt	22.4 Mt
Limestone for industrial use	about 50 Mt	about 50 Mt
Silica sand	16.6 Mt (1999)	unknown
Clay	20.4 Mt	21.5 Mt
Crushed rock	nil	nil
Filling material (fine sand)	unknown	unknown
Sand for lime-sandstone	38.1 Mt	40.1 Mt

3.2. Aggregate minerals supply and demand

Due to the Dutch geological condition, exploitable quantities of coarse sand only available on certain parts of the country. As a consequence of scarce in coarse sand and hard-rock outcrops, the Netherlands should import these materials from its neighbouring countries to fulfil the national demand for construction materials. This material is come from Germany, the United Kingdom, Belgium, Scotland, Norway, and France. On the other hand, the abundant of fine sand, the Netherlands import this material to its neighbours (See Table 3.1). [8]

[8] Source: Paul Ike (2007) in BHM 12/2007

Table III.2. Supply and demand of construction aggregate in the Netherlands

No	Description	Aggregates (in million tonnes)				
		FS	CS	Gr	CR	Total
1.	Annual demand	84.03	22.50	19.40	9.60	135.5
2.	Export (to Belgium only)	3.63	8.70	2.60	0.00	14.90
3.	Supply by import - Germany - The UK - Belgium - Scotland - Norway - France	0 0 0 0 0 0 0	11.00 8.47 1.50 0.99 0 0 0	13.10 8.60 2.30 2.20 0 0 0	9.60 2.00 0 5.70 1.00 0.31 0.50	
4.	Total annual production	87.66	21.45	6.60	0.00	115.7
5.	Extraction from small scale, regional scale	29.89	7.52	1.23	0.00	38.60
6.	Extraction from large scale, regional scale	21.67	13.16	5.37	0.00	40.20
7.	Marine dredged the Dutch part and continental shelf	36.10	0.77	0.00	0.00	36.90

Note: FS = fine sand, CS = coarse sand, Gr = Gravel, CR = crushed rock

Source: Road and Hydraulic Engineering Institute (2003).

The consumption of concrete and masonry sand (coarse sand) in the Netherlands is about 24 million tonnes every year and it depends on the economic condition. In 2005, production in the Netherlands is roughly 14 million tonnes. About 2.5 million tonnes of the finer sand are exported to Belgium and approximately 12.5 million tonnes the coarser aggregates are imported from Germany.

For gravel and crushed rock, the consumption is about 31 million tonnes per year and it also depends on economic condition. In 005, the production of gravel is about 3.5 million tonnes. The finer aggregates are exported to Belgium, and about 13.4 million tonnes of the coarser types are imported from Germany. In the same year, 12.1 million tonnes crashed rock is imported from Norway and Scotland (See Table 3.2)

Table III.3: Production, Import, Export and Consumption in The Netherlands primary raw materials (a)

Commodity	Production 1990-2000 (million tons)	Production 2005 (million tons)	Import 2005 (million tons)	Export 2005 (million tons)
Coarse sand	21.0	14.0 (b)	12.5	2.5
Gravel	7.0	3.5	13.4	0.3
Crushed rock	0.0	0.0	12.1	0.0
Limestone	1.5	1.3	1.3	0.0
Silica sand	0.5	0.5	0.5	0.2
Clay	3.4	4.7	0.3	0.1
Fill sand (fine sand)	74.0	90.0	0.0	2.0
Sand for lime-sand stone	3.6	2.6	0.0	0.0

Source: (in Ike, 2007 in BHM: 405).

(a) Ministry of Transport, Public Works and Water Management, Road and Hydraulic Engineering Institute, Productie en verbruik van beton- en metselzand en (gebroken) grind in 2005 (December 2006) and LCCO/WIG 2006
(b) Commissie Tommel (2007)

For fulfilling their needs, coarse sand barren provinces have to get the coarse sand from other provinces which have abundant supply and this condition arise an inter-provincial distribution problem. Because of the lack of coarse sand in its area, the Netherlands imports a lot of concrete sand from its neighbouring countries ('*regional shortage*') especially from Germany.

According to Ministry of Transport, Public Works and Water Management, the value of import of coarse sand is increasing since 2000 significance, which is from zero in 1999 to 10 million tonnes in 2005 (Ministry of Transport, Public Works and Water Management, 2005; commisie Tommel, 2007 in Ike, 2007).

Table III.4. Production of Coarse sand (from 2000 to 2004)

No.	Year	Production (million tons)
1.	2000	21.2
2.	2001	19.8
3.	2002	16.7
4.	2003	15.2
5.	2004	13.6

Source: Commissie Tommel, 2007 (in Ike, 2007 in BHM: 405).

On the other side, the production of gravel is decreased about 3.5 million tonnes every year. For example is during the decade 1970 to 1980, the production was 13 to 14 million tonnes per year and the annual consumption was 18 million tonnes, but now only 10% of its gravel/crushed rock consumption can be self-supporting.

According to Ike (2007), the decreasing of gravel's production in the Netherlands is caused by 'planning availability". The problem of NIMBY (Not in My Back Yard) occurs in this case. This is caused by accumulation of spatial planning problems environmental awareness which grow to refuse extraction permit (van der Meulen:2). The abundant of raw material quantities in southern of the Netherlands (province Limburg) does not support by the willingness of the people living in this province. They refuse exploitation from their area.

3.3. Mineral Planning in the Netherlands

3.3.1. National Planning

Between 1960s and 1970s, provinces and Directorate-General of Public Works and Water Management (Rijkswaterstaat) have authorities for permit-issuing of mineral planning in the Netherlands. These authorities are divided into the location of the permit exploitation. The provinces have authorities for issuing the mining permit in on-land extractions. For extractions location on water, such as rivers and sea, is task of Directorate-General of Public Works and Water Management. In the Mineral Extraction Law, national government does not have

task to handle coordination and co-operation of this sub-national task on mineral extraction permits (van der Meulen).

National started paying attention to supplies of aggregates such as gravel, coarse sand and clay for ceramic industry by the middle of 1970s (Ike, 2000 in van der Meulen). Minister of Transport, Public Work and Water Management assign the National Commission for the Coordination of Mineral Planning Policy which called LCCO (*Landelijke Comisie voor de Coordinatie van het Ontrgrondingen beleid*). People in this commission consist of representatives of the permit-issuing authorities.

Some years after forming, LCCO has produced a series of report purpose the national involving in mineral planning guidance. In 1981, the national government and the provincial administrations made a set of agreements on the extraction of gravel, concrete, and mortal sand, and clay until 1989 (van der Meulen, 2005). This is based on a policy document which states problems and set objectives for construction materials in the Netherlands for over long-term, such as after 1989 (Anonymous, 1983 in van der Meulen, 2005). Long-term national mineral policy plan states that planning and co-ordination is needed in exploitation for surface mineral resources in the Netherlands (Anonymous, 1983 in van der Meulen, 2005). Beside, integration among mineral planning and other policy fields is also needed, particularly in spatial planning policy (Anonymous, 1983 in van der Meulen, 2005).

Needed 16 years for preliminary, not until 1996, an amendment to the Mineral Excavation Act is proposed which aims to get accustom to sectoral and spatial trial. Another goal was to repair the coordination between national and province level in mineral task and issuing the permits. Finally, after revising, “the Mineral Extraction Law” partly functioned as “Mineral Planning Act” of 1996.

Hence, from 1996, the role of the government has been express in the National Structure Plan of Surface Raw Material. According to Ike, the involvement policy of government in the National Structure Plan of Surface Raw Material was represented in: Part 1: intended content; Part 2: reactions; Part 3: final government decision; Part 4: approval by both Chambers of Parliament. The structure plan draft was prepared under authority of the Ministry of Public Works and Water Management (Ministry of Transport, Public Works and Water Management, 2000)[9]. The coordination has seen from also subscribed the document by the Minister of Housing, Spatial Planning and the Environment.

Because of the reducing of financial and for trigger more encouragement of market-oriented extraction sector, the Ministry of Transport, Public Works and Water Management decided to lessen its role in mineral planning (Ike, 2007 and van der Meulen, 2005). The withdrawal of government's role in mineral planning and raw material supply was announced in May 2003 by the Secretary of State of Public Works and Water Management. Only the first and second part of the second Structure Plan on Surface Raw Materials was published. The first part was published in June 2001 and the second part was in July 2002.

Due to the new market-oriented approach in 2003, the Dutch government had to take the National Structure Plan on Surface Raw Materials out of the Mineral Extraction Law. Following April 2004, the Dutch National Policy on surface raw materials has been a part in the National Spatial Plan in Part 3: final governmental decision (Ministeries van VROM, LNV, VenW en EZ, 2004)[10]. It states in one and half pages from 277 pages of the second National Structure Plan. It states that the role of government in controlling supply and demand will be reduced. As consequence, the market will steer the extraction of surface raw materials.

[9] in Ike, 2007 in BHM
[10] idem

Market is given many eases in doing its role in mineral. For example, if needed, the cabinet will take action to remove obstructions in policy and in regulations and legislation. From government side, the Ministry of Economic Affairs and the Ministry of Transport, Public Works and Water Management will make a plan in order to achieve optimal market economy condition.

According to Paul Ike (2007), the policy with respect to raw building materials aims to stimulate the exploitation of these materials in a socially responsible way. There are two basic principles of this policy, which are:

1. The use of raw materials should be economically and as much as used for high-grade application.
2. Secondary or renewable raw materials are used maximally.

Therefore, since 2003, the government's role in mineral planning and raw material supply in the Netherlands is changed again. This planning system in mineral planning is back to government's role in 1976.

And since April 2004, some Ministries have responsible in the government's role of spatial planning regarding raw materials. On one hand, The National Spatial Plan and the policy for the sustainable use of materials is task of Ministry of Housing, Spatial Planning and the Environment while Ministry of Agriculture, Nature Management and Fisheries is responsible for concerning nature management. On the other hand, Ministry of Transport, Public Works and Water Management will be decreased, only for state water such as main rivers and the North Sea. As stated in the National Spatial Plan, the sand extraction from the North Sea become national interest, therefore deep extraction of coarse sand will be allowed. The Ministry of Economic Affairs functions as the first contact for the raw material extracting industry.

Since 1 February 2008, the Netherlands does not have "Mineral Planning Act", therefore the minerals planning system is back to 1965. It means that the firms

only need permit excavation from provincial authority to excavate the aggregates. Because of the issue of environmental degradation due to excavation activities, the provincial governments put the environmental quality and multi function quarry in their regional mineral plan. The provincial government will announce the new excavation site to the public and excavation companies and the companies will make planning for the site. The permit will be granted to the excavation company which has better multi function quarry which considering the environmental quality.[11]

3.3.2. Regional Planning

The Dutch Spatial Planning Acts allows the provincial council to make a Regional Plan or revise the existing one. In mineral planning, the provinces make a plan which is called *Regional Mineral Extraction Plans.* Even though the plan which developed by provinces is still optional, the provinces are permissible to make a Mineral Extraction Policy Plan as a part of Regional Plan.

As stated by Ike (2007), since 1996, provinces can signify two types of excavation locations: an (rough) *extraction zone* and a (detailed) so-called "*extraction site*". For extraction site in a Regional Spatial Plan is arrayed at level of detail in Local Land Use Plan of municipal level. A province can protect areas with have potential mineral reserves against development with have possibility to obstruct mineral extraction in the future.

Local Land Use Plan which made by the local government (municipalities) functions as a compulsory plan for the municipal territories. Some municipalities make a construction permit which compulsory for operators and it has to be applied to the municipal executive.

In the Mineral Extraction Law (revised in 1996) states possibility to appeal against an extraction site in a Regional Spatial Plan. But now, this possibility will

[11] Interview with Paul Ike (28 July 2008)

no longer be an option because in allocating extraction zone, the province should be fixed with the Spatial Planning Act. In a Regional Spatial Plan, objection (without appeal) can be made to the Provincial Council. If the extraction zone has been incorporated into the Local Land Use Plan, appeal can be made to the Council of State.

3.4. Sustainability of Mineral Planning in the Netherlands

In the Dutch National Spatial Plan, Surface Raw Material Assessment (SRMA) becomes a new issue. According to Ike (2007:406), based on National Spatial Plan, new spatial plan outside built-up area have to pursue to basic principles of sustainable minerals, which are:

a. *The effects on the provision of surface raw materials have to be taken into consideration.*
b. *The geological occurrences of scarce surface raw materials such as concrete and masonry sand (coarse sand), gravel, limestone, clay for bricks and silica sand also have to be taken consideration. In this way, the excavation possibilities will not be obstructed for future generation.*
c. *The possibility of combinations of raw material excavations and other function must also be taken into consideration. Under particular circumstances, in such cases more raw materials may be extracted than strictly necessary.*

Sustainability criteria concerning mineral planning in the Netherlands can be formulated regarding recycling and the use of alternative and/or renewable materials. Van der Meulen (2005) says that previous particular policies about recycling of materials in the Netherlands have been very successful. In national level, it was shown that a major part of National Structure Plan on Surface Raw Materials expressed to recycling and the use of alternative and renewable materials. Article 7a of the Dutch Excavation Act states that the National Structure Plan on Surface Raw Materials should consist of*: a) the outlines and the basic principles of the policy concerning the extraction of solid materials and; b)*

the policy for stimulating the use of alternative materials in order to limit the extraction of solid materials.

Other declines of sustainability of mineral planning in the Netherlands due to market-oriented planning can be seen from cancelling of the 25 guidelines in National Structure Plan on Surface Raw Materials in which many of these guidelines were related to sustainable matters[12], such as:

- Guideline 5: After the closing down of the mineral site, the site should have a change of use, which is acceptable to society.
- Guideline 7: The extraction has to take place as much as possible in the same region as where the demand for the materials arises.
- Guideline 8: Excavations have to be situated in such a way (if possible) that treatment of the materials at the site and transport by train or ship is possible.
- Guideline 13: Secondary Plus Extraction (for example: dredging deeper than necessary) need to be stimulated.
- Guideline 17: Ecological and geomorphological harmful consequences need to be kept to a minimum.

Even though the National Structure Plan on Surface Raw Materials has been expired[13], nowadays this sustainable mineral concept try to be adopted by provinces in their Regional Mineral Extraction Plans (Koopmans, 2007 in Ike, 2007 in BHM: 408). Due to more market-oriented planning recently, whether the role of Ministry of Housing, Spatial Planning and the Environment will continue the policy is still unclear.

3.5. Justice of Mineral Planning in the Netherlands

The right of the landowner to refuse the research for potential mineral on their land is almost none, based on Excavation Act revised 1996. The Minister of Transport, Public Works and Water Management or provincial executive can

[12] Report of Study of Mineral Planning Policy pp.17
[13] National Spatial Plan section 2.2.2.2 (Report of Study of Mineral Planning Policy pp.17)

compel the landowner to allow such the potential mineral research. The Excavation Act does not state explicitly about the exploration of minerals. In regulating the exploration of minerals is used the usual private and public laws.[14]

Dutch Excavation Act states that the provincial executive is functioned as the most important role in the decision process. For getting the excavation permit, the party should follow the application process. This application process has three main stages which in chronically order are:

- Preparation stage (no time limit)
- Permission process (6 months)
- Appeal process

Appeals have to be made to the state council. For appeal procedure officially needs 12 months, but in practice it needs 24 month.

The Excavation Act (article 10) states that: "at the preparation of a decision concerning granting or refusing, c.q. adjustment or revokement of a permission, paragrapf 3.5.2 up to and including 3.5.5 and 3.5.6 of The Administrative Law Act is applicable". *In fact, the Administrative Law Act regulates the procedure for the excavation permit.*

It needs long process and procedure to grant the environmental permission because more permission should be granted by the applicant. As consequently, people may object the draft decision. Therefore, appeals with the framework of the environmental permits can be made by them and by statutory advisors.

3.6. Efficiency of Mineral Planning in the Netherlands

According to the Dutch Excavation Act which revised in 1996, the shells, gravel, sand and clay at or near the surface of the Continental Shelf is owned by the state. Beside that, seabed within its border and the rivers is also occupied by the state. The mining companies need an extraction permits for land-based extraction. For

[14] Study of Mineral Planning Policies: The Netherlands

getting the permit, they have to get permission from the landowner. As long as getting permission from the landowner, they do not have to own the land. However, there is possibility for the operator to buy the land. But, for conducting the surface mineral's exploration or 'opencast mining exploration', the companies do not have to have a permit. They do not need pay anything both to the government and landowner. The operator usually only asks for permission to the landowners to do the exploration in their land. The permit is needed when the operator want to explore in state water area because this concern to nautical aspects.

In legal term, all the application needs to be admissible. As stated in the Excavation Law, the Provincial Excavations Ordinances and the Administrative Law Act, the application has to be complied with the following condition:

- *Preliminary talks*
- *Filling in the application form (obtainable at the regional body)*
- *Land registry extract of the concerning parcel (maximum 6 month old)*
- *Official drawing which show the concerning parcel and the ones adjacent to it. With scale and arrow indicating the North*
- *Topographic map, scale 1:25,000 (with shaded area)*
- *Blueprints with cross sections. These drawings consist of civil engineering drawings and design drawings. The civil engineering drawings need to contain slope, benchmarks of the existing ground level, groundwater levels, transverse section, etc.*

The Minister of Transport, Public Works and Water Management is pointed as authorized institution for the state water in the Netherlands.

Before getting the excavation permit, the applicant should get an environmental permit. This precondition is based on the Environmental Protection Act. The Environmental Act procedure consists of other procedures such as Air Pollution

Act, Waste Substances Act, Nuisance Act, etc[15]. Unfortunately, environmental permission is not integrated with other part of environmental act, i.e. the Pollution of Surface Water Act. Therefore, the operators are also need a discharging permit according to The Pollution of Surface Water Act.

The authoritized body concerning permits are local (the municipality) and provincial government. It is based on their task, which are:

- The municipal executive's task is concerning those cases which initially execute under the Nuisance Act.
- The provincial executive's task concerning those cases which deal with more complex situation, and which previously address the Waste Act, Noise Abatement Act, and the Air Pollution Act.

There are two types for getting an environmental permit, which are the "standard procedure" and the "extended procedure".[16] Extended procedure is adopted in the case of application regarding technical/juridical complex or controversial situation. Usually, large excavation will face this situation rather than small excavation.

Permit requirements can be:

- *Administrative and organizational requirements*
- *Goal requirement*
- *Financial security requirement*
- *Energy, raw material and traffic requirement*
- *Aftercare requirement*
- *Requirement under resolutive and suspensive requirement*
- *Special requirement concerning waste*

The Excavation Law is added to Article 13 of the Environmental Protection Act. Through this, the coordination and regulation like stated in chapter 14 of the

[15] Study of Mineral Planning Policies: The Netherlands
[16] idem

Environmental Protection Act is applicable. This condition forces the applicants to get more permissions for the same excavation. The applicant can apply request to the authorized body to make conducive coordination concerning the application. Usually, need six months to make decision since the Administrative Law Act applied to the preparation of the decision[17].

[17] idem

Chapter 4
Planning System in the Indonesian Mineral Planning

The different condition of aggregate mineral resource with the Netherlands, Indonesia has various and huge amounts of its aggregate mineral resource. Due to this condition, Indonesia is able to fulfil its mineral resource. Even though Indonesia is rich of minerals, some issues concerning environmental, economic, and social problems which triggered by decentralization emerge in Indonesian mining activities. This chapter will elaborate minerals in the Indonesia which consist of its mineral resource, its aggregate minerals supply and demand, its mineral planning from national to regional level, and sustainability, justice, and efficiency criteria in Indonesian mineral planning.

4.1. Mineral Resources

Indonesia, the area which has approximately 9.8 million km² (81% of total area is sea)[18] has huge mineral resource potential. Indonesia is one of the richest mineral resource countries in the South-eastern Asia. Mineral extraction has been long time familiar with Indonesian people. In Hindu time, there was gold mining activity in Kalimantan (Aspinal, 2001). In period of 4th – 8th century, mining activity was done by one of board which identified as Chinese District in West Kalimantan.

None of the major ore bodies are known and have potential deposit in the Cretaceous arc of Indonesia. The potential ore bodies were founded between the Oligocene to Lower Miocene arch with limited place, which is only in the Central Kalimantan arc. The potential deposits or prospects in Indonesia are associated with mid-Miocene to the late Pliocene arc magmatism. The most mineralization age in Indonesia is in the Pliocene.

[18] Source: Suyono Dikun, Infrastruktur Indonesia. Sebelum, Selama dan Pasca Krisis, BAPPENAS, 2003.

According to Carlile and Mitchell (1994), there is relationship between the arc age and the abundance of major ore bodies and deposits in Indonesia's mineral resource This relationship can be occurred because higher uplift during and following volcanic activity cause more erosion, and it is potential to make magmatic inflation (Hamilton, 1988 in Carlile and Mitchell 1994), and the erosion related to orogenic events while post-mineralization arc was formed (Carlile and Mitchell 1994). Hence, limited erosion in the Quaternary volcanic rocks causes the absence of mineralization.

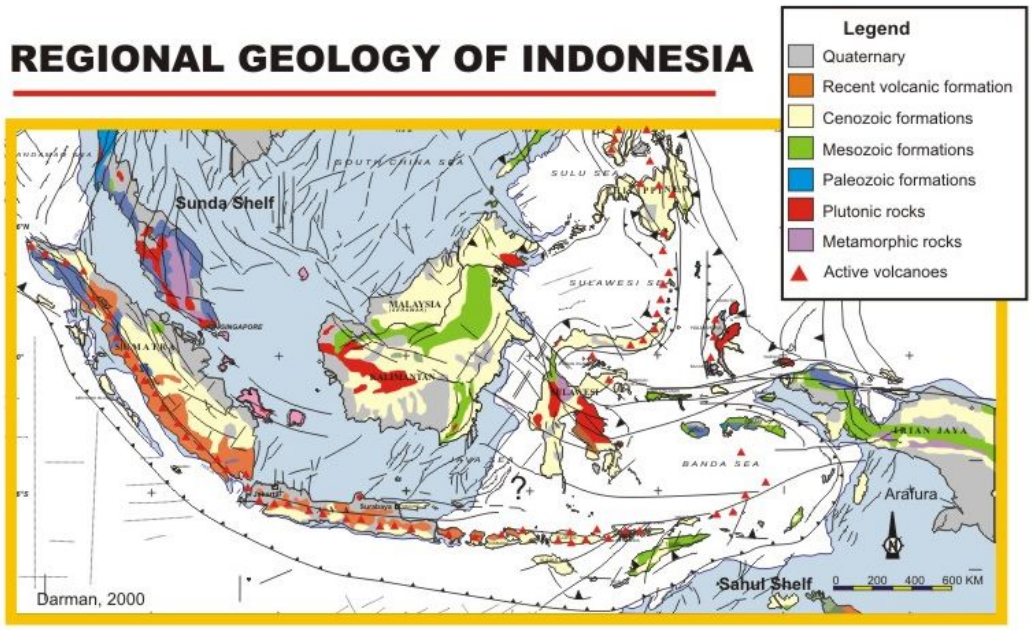

Figure IV.1. Map of Regional Geology of Indonesia

Source:
http://upload.wikimedia.org/wikibooks/en/5/5b/INDONESIA_geology_map.jpg

Aggregate minerals supply and demand

Based on Act No. 11/1967 concerning General Mining and Government's Regulation of Republic Indonesia No. 27 Year 1980 about Classification of Minerals, mineral is distinguished to become three types as follows:

a. Type A is Strategic Mineral, such as: crude oil, natural gas, coal, cobalt & tin, uranium & Radio active Mineral, Nickel.

b. Type B is Vital Mineral, for example: Iron, Bauxite, Copper, Gold, silver, platinum, Zinc (metal), Diamond, Iodine, Chloride, Sulphur;
c. Type C is Others Mineral (except Type A and B), such as Non metal mineral, nitrate, phosphate, Salt, Asbestos, mica, Precious stone, Pumice, marble, lime stone & sandstone.

The principal mineral resources and produced in Indonesia are bauxite, cement, coal, copper, gold, nickel, natural gas and petroleum, silver, and tin. In the world, Indonesia was among the top five producer's countries of copper and nickel and its tin output in the second position after China (U.S. Geological Survey, 2007). And, for gas production, it ranked eight of the producers.

Due to strong demand for alumina in 2006, the production of bauxite was increased by 39 %. Increasing production also occur for gold which was by 26%. The decreasing production occur in iron sand because P.T. Krakatau Steel, the main producer's company of steel was aging its production facilities (Kuo, 2006)

In oil's producers (including natural gas), Indonesia is a member of the Organization of the Petroleum Exporting Countries (OPEC). In 2006, Indonesia was produced 1.04 million barrels per day (Mbbl/d) of petroleum and supplier for 1.8% of world demand (Kuo, 2006). For liquefied natural gas (LNG), Indonesia was the leading producer and exporter in the world (Kuo, 2006).

Table IV.1. Production of Mineral Commodities in Indonesia

(metric tons unless otherwise specified)

Commodity		2002	2003	2004	2005	2006
METALS						
Aluminum:						
Bauxite, wet basis, gross weight	thousand metric tons	1,283	1,263	1,331	1,082 r	1,502
Metal, primary		160,000 e	200,000 e	247,000	252,300 r	250,300
Chromite sand, dry basis[e]		1,000	1,000	1,000	1,000	1,000
Copper:						
Mine, Cu content		1,171,726	1,005,837	840,318	1,064,200 r	793,000
Metal						
Smelter, primary		211,200	247,400	211,600	275,000	201,200
Refinery, primary		192,400	223,300	210,500	262,900	217,600
Gold, mine output, Au content[2]		142,238	141,019	91,710	130,620	164,400
Iron and steel:						
Iron sand, dry basis		378,376	245,409	89,664	32,203 r	10,963
Metal:						
Ferroalloys:						
Ferronickel		42,306	43,894	39,538	36,690	32,445
Ferromanganese[e]		12,000	12,000	12,000	12,000	12,000
Silicomanganese[e]		7,000	7,000	7,000	4,000	5,000
Pig iron, direct reduced iron	thousand metric tons	1,500 r	1,230 r	1,470 r	1,390 r	1,290
Steel, crude	do.	2,462	2,042	3,682	3,675	2,500
Nickel:						
Mine output, Ni content[3]		143,000 r	144,000r	136,000 r	135,000 r	140,000
Matte, Ni content		59,500	70,200	81,120	77,471 r	72,782
Ferronickel, Ni content		8,804 r	8,933	7,945	7,003 r	6,489
Silver, mine output, Ag content	kilograms	293,520	285,206	261,960	328,749 r	327,557
Tin:						
Mine output, Sn content		88,142	71,694	65,772	78,404 r	80,933
Metal[4]		67,455	66,284	49,872	65,300	63,200
Zirconium concentrates, gross weight		250	250	200	200	200
INDUSTRIAL MINERALS						
Cement, hydraulic	thousand metric tons	34,600 r	35,500 r	33,230	33,917	34,000
Clays:[e]						
Bentonite		5,000	5,000	5,000	5,000	5,500
Fire clay thousand	metric tons	1,900	1,900	1,900	2,000	2,000
Kaolin powder		15,000	15,000	15,000	15,000	15,000
Diamond:[e]						
Industrial stones	thousand carats	23	23	23	23	23
Gem	do.	7	7	7	7	7
Total	do.	30	30	30	30	30
Feldspar[e]		24,000	24,000	24,000	24,000	25,000
Gypsum[e]		6,000	6,000	6,000	6,000	6,000
Iodine[e]	kilograms	75	75	75	75	75
Nitrogen, N content of ammonia	thousand metric tons	4,200	4,250	4,120	4,400 e	4,300 e
Phosphate rock[e]		600	600	600	600	600
Salt, all types[e]	thousand metric tons	680	680	680	680	700
Stone:						
Dolomite[e]		3,100	3,100	3,100	3,100	3,200
Granite	thousand metric tons	4,966	3,939	3,340	4,170	4,200
Limestone[e]	cubic meters	16,500	16,000	16,000	16,500	16,000
Marble[e]	do.	1,000	1,000	1,000	1,000	1,000
Quartz sand and silica stone[e]	do.	145,000	150,000	150,000	150,000	155,000
Sulfur, elemental[e]		73,500	78,500	83,500	83,000	82,000
Zeolite[e]		400	400	400	400	400
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite[e]		42,690 5	50,000	50,000	50,000	52,000
Bituminous thousand metric tons		103,329	114,000 e	131,530	142,920	153,400
Gas, natural:						
Gross million cubic meters		85,959	89,324	83,740	85,830	86,000
Marketed[e]	do.	51,000	54,000	52,000	53,000	52,000
Petroleum, crude including condensate	thousand 42-gallon barrels	432,000	413,000	362,000	352,000	340,000

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [r]Revised.

[1]Table includes data available through September 6, 2007.

[2]Includes Au content of copper ore and output by Government-controlled foreign contractors' operations. Gold output by operators of so-called

[3]Includes a small amount of cobalt that was not recovered separately. people's mines and illegal small-scale mines is not available but may be as much as 20 metric tons per year.

[4]Output by Central Government-controlled foreign contractors operations. Tin output from small tin smelters is not available but may be as much as 40,000 metric tons per year.

[5]Reported figure.

Source: Chin S. Kuo, 2006 (U.S.G.S Mineral Year Book 2006)

Mineral for construction materials including aggregate minerals is categorized as Type C Mineral. Even though Indonesia has huge amount of these raw materials, they are distributed unevenly among the areas. Some regions have to fulfil their material construction's needs from other regions. The reserves and resources of construction materials in Indonesia can be seen in table below:

Table IV.2: Construction materials resources in Indonesia in 2005 (in ton)

Commodity	Hypothetic Resources	Inferred Resources	Indicated Resources	Measured Resources
Andesite	44.785.472.000	19.164.267.000	2.875.220.000	287.946.700
Basalt	0	2.393.900.000	0	0
Dacite	506.310.000	2.026.125.000	0	0
Diorite	426.653.000	520.000.000	0	0
Gabro/Peridotite	19.111.197.000	25.000.000	0	0
Granite	626.765.688.000	2.172.271.000	529.708.000	0
Marble	231.426.903.000	1.787.887.000	205.420.000	428.526.200
Onyx	70.265.000	0	0	0
Pumice	510.857.250	47.965.000	283.000	419.000.000
Sand	19.550.723.000	6.168.000	1.453.000	0
Sandstone	3.048.705.000	3.066.141.000	37.726.000	75.072.300
Spilte	16.375.000	0	0	0
Trass	6.617.807.000	174.415.000	20.012.000	16.312.000
TOTAL	952.836.955.250	31.384.139.000	3.732.822.000	1.226.857.200

Source: Centre of Data and Information of Energy and Mineral Resources, The Ministry of Energy and Mineral Resources[19]

4.3. Mineral Planning in Indonesia

4.3.1. National Planning

Indonesia consists of 33 provinces, of which 4 are special provincial territories. Every province is divided into regencies and municipalities. The regency and municipality have the same level in the governmental hierarchy. Mining industry in Indonesia is regulated by central and regional regulations. On regional level, it is regulated by provincial and regency/municipality government.

[19] http://dtwh.esdm.go.id/index.php?page=mi_cadangan

The need to distribute wealth in the last decade, especially in mining sector is one of challenges for Indonesia (Tse, 2005). Therefore, in 1999, the Parliament issued two Acts. The first is Act No. 22/1999 about Regional Government and the second is Act No. 25/1999 regarding Fiscal Decentralization. These acts affected on January 1, 2001. Issuing of these two acts confused mining companies because they were contradicted with Act No. 11/1967 about General Mining. Unclear mining policy made many foreign investors were worry about the legal and political stability investment in the country and postponed new investor to invest in mining sector (Indonesia's Investment Coordinating Board, 2005 in Tse, 2005).

Pui-Kwan Tse (2005), states that the regional autonomy did not give significant impact to the community prosperity and democracy and also discourage the trade and investment climate. Survey data from KADIN (Indonesian Chamber of Commerce and Industry) states that from 297 of 881 bylaws which made regencies and municipalities were identified to deject the investments. This situation is one of the reasons why the state amended Act No. 22/1999 with Act No. 32/2004 about Regional Government and Act No. 25/1999 with Act No. 33/2004 about Fiscal Decentralization.

As the consequences, many mining companies postponed their expansion and new investment projects and waited for clear and unequivocal legal protection of their mining activities from the government (Pui-Kwan Tse, 2005)[20]. In 2000, mining companies which operated under Contract of Work (CoW) only spent fifty percent ($550 millions) of their investment companies' in 1999. At the same year, many mining contractors, producing and exploration companies[21] postponed their investment program and 18 CoWs were terminated.[22]

[20] Such as BHP Ltd., PT Aneka Tambang (PT Antam), PT Freeport Indonesia Co., and Rio Tinto Ltd.
[21] 30 mining contractors, 14 producing companies, and 16 exploration companies
[22] (U.S. Embassy, Jakarta, Indonesia, February 15, 2001, IMI Indonesian mining sector update, February, at url http://www.usembassyjakarta. org/ econ/indomining.html).

Even though more than 5 years of discussing, the draft of new mining act that will replace Act No. 11/1967 have not been completed yet. Replacement of Act No. 11/1967 about General Mining is necessary to be done because the old Act was not appropriate with mining sector in current condition. The new Act will be named the Mineral and Coal Mining Act expects to give good condition in mining sector due to changed condition during the past several years (Tse, 2005).

There are some fundamental changes in new draft Act compared with the Act No. 11/1967. The term contract of work (CoW) will be replaced by mining permit or licence (mining business licences, people's mining licences, and mining assignments). The draft Act will give the same treatment between foreign and domestic investor, which is quite different from the Act No. 11/1967. Environmental concerns such mining waste disposal, and restoration of post mining activity will be strengthened. Another important point is the clear role of local government in superintendence the mining. The role of local government will be adjusted to harmonize with Act No. 22/1999 and Act No. 32/2004 about Regional Government. According to Petrominer (2001), The Ministry of Energy and Mineral Resources and other related departments show that investment needs the regulation which can adapt the changing role of government regarding to implementation of regional autonomy and fiscal decentralization and more protection to the natural environment (in Pui-Kwan Tse, 2005).

Based on Department of Energy and Minerals Resource, there are basic principles in composing the draft Act 25th May 2001 as follows:

- Still address the Indonesian Constitution 1945
  The mineral resources are owned by all people, managed by state, and be used for people's wealth prosperity. Therefore, the state has responsiblity in development of these resources.
- In line with Local Autonomy.
- Give many advantages for Indonesia and at the same time can be accepted for all stakeholders continously.

- More pays attention to human right, land right, and customary right, including local community development.
- More guarantee to environmental protection.
- The same treatment to all investors.
- Clear right and duty all the stakeholders.
- Authorithy of local government should be in line with Act No. 22/1999 and Act No. 32/2004.
- Unequivocal sanction based on present condition.
- Conducif for the mining sector's growth and encourage economic growth.

In 2006, the government proposed three new economic policies which are to improve the health condition of financial sector, the infrastructure, and the investment climate. The development of mineral deposits and oil and gas has been an important part of the Indonesian's government economic growth plan. To implement the policy, in February 2006, Government launched Presidential Instruction No. 3 Year 2006 named "Investment Climate Improvement Package". This is a package aim to attract the investment in Indonesia. Policies design to strengthen investment service with improving investment licensing and permitting procedures and synchronizing administration between central and regional government's regulations and procedures on mineral planning are some the contents of these package.

To exploit Indonesia's abundant minerals, the government encourages domestic and foreign investor's participation in Indonesia's mining sector. As the result, in 2006, thirteen mining projects about $ 98.5 million were brought into production (Kuo, 2006). For foreign companies, US firms are the mayor investor, especially in the oil and gas sector (Kuo, 2006). State-owned companies are the majority in the mining investments.

Act No. 22/1999 (revised with Act No. 32/2004) about Regional Government and Government Regulation (GR) No. 25/2000 concerning Government and

Provincial Authority states about the central, provincial and local government's authority. This acts states that central government has full authority in six sectors, which are foreign politics, defence, security, justice, monetary and fiscal, and religion. Other authorities, including to control the national planning and macro national development, budgetary funds, the state administration system and the state of the economic institutions, the cultivation and empowerment of human resources, the use of natural resources and strategic advanced technology, conservation and the national standards.

The Indonesian Constitution states that all natural resources in the soil and the waters are under the jurisdiction of the state. Based on these acts, related to mining sector, authorities of central government as follows:

1. determining monitoring and investigating geological natural disaster's standard.
2. determining standard of general investigation and processing mineral.
3. determining criteria of business work area, including distribution of electric power and mining.
4. doing survey of geological basic and groundwater on smaller scale or equal to 1:250,000, compiling thematic map and inventory of energy and mineral resources and mitigation of geological disaster.

Beside above authorities, there are some tasks of central government regarding space layout and environment as follows:

1. to determine the national space layout in accordance with the layout of the area regencies / municipalities and provinces.
2. to facilitate cooperation of cross-provincial space layout.
3. to determine the guidelines for control of natural resources and the preservation of the environment function.
4. for determining the standard quality of the environment and for determining the guidelines with respect to the pollution of the environment.
5. to determine the guidelines relating to the conservation of natural resources.

4.3.2. Regional Planning

In1999, the decentralisation and regional government Act (Act No. 22/1999 about the regional government, revised with Act No. 32/2004) shifted the wide from central government to the level of province, regency, and municipality in the matter of the mining of the hard. Followed up the Government Regulation No. 75/2001, the mining right in the form of KP can be given, arranged and conduct in the level of the state, the province, the regency or the municipality, depended on the condition for the mining area, whether its location in the province, the regency or the municipality area that overlapped. At The Same Moment, Act No. 25/1999 and 33/2004 guaranteed that there is significant increase in the distribution of the income that was allocated to the province, the regency and the municipality government that came from dead rent, the tax, and royalties by the holder of the mining right. The government regulation No. 75/2001 also states that Contract of Work or CoW has to be appointed separately, with holding consultations with Parliament. Since May 2005, the People's Representative Council (DPR) has considered new mining regulations.

In acts and other Government Regulations state that one of the authorities and tasks of provinces is to cover cross regencies/municipalities territory. Under mutual agreement between provinces and regencies/municipalities, the province can bring about the authorization in particular sectors.

For mining sectors, there are some authorities of provinces, they are as follow:

1. support the development and use of mineral.
2. to grant permits for the core business of general mining regencies / municipalities that cover the exploration and exploitation.
3. for training and research the field of mining and energy in the provincial areas.

The authority of the province on the planning and environmental sectors related to mining sector can be described as follows:

1. to determine the planning of the provincial areas based on mutual consultation between provinces and regencies/municipalities.

2. to monitor the implementation of the plan.
3. to control cross-border environment of regencies / municipalities.
4. to organize the management of the environment in the use of marine resources 4 (four) miles up to 12 (twelve) miles.
5. to evaluate and analyse the impact on the environment (AMDAL) on activities with possible negative consequences for the public, which location refers to more than one regencies / municipalities.
6. to monitor the implementation of cross conservation of the regencies / municipalities.
7. to establish standard quality of the environment on the basis of the national quality standard.

To clarify the Act No.22/1999 and GR No. 25/2000, The President of Republic Indonesia issued Presidential Degree No. 5/2001 concerning The Implementation of Acknowledgement of Authorities of Local Governments. Then, to support the Presidential Degree, Ministry of Home Affairs was issued Ministerial Degree No. 130-67/2002 concerning Acknowledgement of Authorities of Local Governments. This Ministerial Degree consists of government authorities in local level based on letter from related ministries. Regarding local government's authorities on mining and mineral resources sector, on 13 September 2001, the Secretary General of the Ministry of Energy and Mineral Resources issued the letter No 3301/06/SJN.H/2001. The letter states that all classification of mining as stated on Act No.11/1967 are the authorities of local government, except crude oil, natural gas, and radioactive mineral are still on national authority.

Sustainability of Mineral Planning in Indonesia

Even though alternative materials development program is not explicitly stated in National Policy, substitution of primary materials with alternative aggregates had been developed in Indonesia. In can be seen from conducted research of some research institution and universities concerning on alterative materials. Some achievements of alternative materials are:

- The use of tailing[23] from PT[24]. Freeport Indonesia as a raw material for the construction and manufacturing of concrete, bricks, pipes and other infrastructure products[25]. This program is collaboration between PT. Freeport Indonesia and Institute of Technology Bandung (ITB) - the Bandung Institute of Technology's Research and Industrial Affiliation Institute - in 1997. The researchers from Freeport and ITB has completed several construction project using tailings as a primary component of concrete for example same public bridge in the Mimika Regency, sections of road in the Freeport project area, and prefabricated concrete for water treatment applications and the construction of levees in the Modified Ajkwa Deposition Area (http://www.fcx.com/envir/wtsd/2006/tailings2.htm).

- The use of coal ash waste from PLTU[26] Suralaya become construction materials such as coneblock, brick and paving block (http://www.indonesiapower. co.id/index.php? option=com_content&view=article&id=127). PLTU Suralaya is an energy plant with 3400 MW which used coal as its fuel. PLTU Suralaya produces 1.200 ton the coal ash waste every day (http://www.baungcamp.com /?articles&post= Manfaat_Abu_ Batubara). The PLTU Suralaya's researchers doing their research, they can utilize waste become economic products.

- Several universities in Indonesia had been conducted researches to reuse waste materials from natural and industrial sources such as scrapped tire rubber (STR) and latex, coconut shell ash and fibber, oil palm shell ash, marble ash, resin, rice hull, steel slag, and nickel slag. The researches have shown successful result because almost all of researched waste materials can be used as alternative materials for pavement construction (Setiadji, B.H., 2005).

[23] From copper and gold
[24] PT (Perusahaan Terbatas) is company which the owner is more than one persons, or Limited company (Ltd.)
[25] Source: http://www.fcx.com/envir/wtsd/2006/tailings2.htm
[26] Power station from steam power

Justice of Mineral Planning in Indonesia

In year between 1967 to 1999, Indonesia had a centrally regulated mining law regime with a 'open-door "policy for foreign investment in mining, which was seen as an attractive and reliable by international mining companies (http://www.mitrais.com/mining/miningIndonesia.asp). For the foreign mining company, the foundation of this assurance was Kontrak Karya or Contract of Work (CoW). This KK is considered as lex specialis, that gave the exclusive mining rights to the corporation's contractor in a certain territory in particular areas for the period 30 years. Right and duty of the government and the contractor based on the stipulation in these heads of the CoW was to be unaffected by the change that happened from time to time in the matter of the legislation, royalties, and taxation. Further, unlike his matter with KP, the dispute that happened between the government and the contractor that held the mining right in CoW will be completed through international arbitration, except if it relates with the problem of taxation.

The Department of Energy and Mineral Resource (DEMR) provided information that was published to the community concerning the Indonesian mining legislation but the information was more incomplete and possibly not was latest information, especially in connection with the regional regulation. On the request of any party the DEMR will provide the map of results printed, namely the map that showed the territory that has been managed by parties that had the mining right that has been identified by being put on the certain cost. This map possibly not latest information or included the mining right that was ask for permitting to get by the government of the province, the regency or the municipality but was not yet reported to the DEMR. However, failure to this report does not invalidate a KP. Lack of coordination amongst various levels of the governments causes the overlapping grants and resultant uncertainty[27]. Geological information and data can be purchased from the DEMR with the price per hectare for areas where at this time were not subject to a currently legal grant of mining rights (KP).

[27] http://www.mitrais.com/mining/miningIndonesia.asp

Information and the data like this generally are produced by the former holder of KP for the related area and are they are handed over in accordance with the stipulation that were required by the DEMR.

The mining rights are given after the issuance of KP (for the smaller area), and in theory is CoW (for the wider area) was based on the first come is first served basis. The kind of right gives the exclusive authority to the holder or the contractor to undertake the mining activity in a scope of the certain area in a certain time. The authority was matched with their achievement in carrying out an appointed obligation. The KP's permit holder or the contractor which have CoW can keep and sell the mineral that was mined on their own KP or KK area, with the note that 'pajak tetap' (dead rent), several taxes and royalties should be paid by the holder KP and the contractor of KK (until to the best of that was appointed in the KK) that in accordance with current regulations generally, like the environmental and forestry legislation.

Based on the Mining Act, KPs can only be granted to Indonesian individuals and legal persons. Although the Mining Law provides that the KP-holder has a proven capacity for the exploitation of minerals in its KP area, this is often not the case. As a result, KP holders may enter into agreements with foreign mining companies to carry out mining activities on their behalf. Some KPs contain requiring the approval of such agreements (sometimes referred to as a Cooperation Agreements) by the issuing authority

A foreign person or entity can not be a direct party to a CoW, but can be a shareholder of an Indonesian PMA (foreign investor) CoW contractor company. Foreigners can hold as much as 100 percent of the issued shares of such companies for 15 years. Then a nominal percentage of the shares in the PMA COW contractor company must be offered to the Indonesians at fair-market or agreed prices. And to protect the mining rights in Indonesia, KP holders and COW contractor companies may attempt to enforce the mining and related rights

against third parties in the Indonesian courts, but litigation is slow and costly, judicial procedures are cumbersome and the results are difficult to predict.

As mentioned above, CoW contractors have the additional right to resolve disputes about their CoW rights and the government's CoW obligations by arbitration. CoWs contain arbitration provisions of disputes specify applicable arbitration rules. The arbitration location may be offshore if so specified in the CoW or the initiation of the party. Enforcement of an offshore arbitration award may be facilitated given Indonesia's adherence to the New York Convention on Enforcement of Foreign Arbitral Awards. Enforcement of offshore arbitration award, in any case, is likely to be difficult and slow.

Indigenous peoples are not recognised constitutionally or otherwise have no legal rights to mineral deposits. Ownership of metals and minerals in the ground is in the state, as described above. In theory, the local people and cooperatives are to be given priority in the event of competing applications for KPs. In practice, as ‘a first come, first served‘approach may preclude this priority from being exercised.[28]

Efficiency of Mineral Planning in Indonesia

Indonesian mining regulations also considered to give the mining power that was arranged with the contract (contract of work/CoW or “Kontrak Karya”/KK[29]) between central government and the private sector contractor. Theoretically, CoW is through the process of negotiation, but in fact, the process of KK followed a series of standard agreement that continued to change (from the first up to seven, in fact to eight), where all of it was ratified by parliament and the president. However the process to renew is very complicated. In fact it occasionally was difficult to be reached.

[28] Source of the subchapter: http://www.mitrais.com/mining/miningIndonesia.asp
[29] Kontrak Karya (KK) is the Indonesian term for Contract of Work (CoW).

The government regulation (GR) No. 75/2001 also state that KK should be stipulated separately by holding consultations with People's Representative Assembly/Parliament (DPR). Since May 2005, the People's Representative Assembly has begun to consider new mining regulations. It became the stumbling block in consideration and the issuance of new CoWs during the last seven year, although there are several major foreign mining companies that have begun to put forward for CoWs new request.

KP can be given by the regent or the mayor if this KP area is located entirely within regency or the municipality. KP can be given by the government of the province (governor) when this KP area is located in two or more the regencies or the municipalities that was adjacent in one province and did not have the coordination between the relevant regent and mayor. KP can be given by Minister of DEMR when this KP area is located within two or more close provinces and does not have the coordination between the relevant governors. The authority on the KP area for the regent and the mayor included up to 4 mile offshore, the authority of the governor included between 4 up to 12 mile offshore whereas the authority of Minister of Energy and Mineral Resource was the KP area that is in the area more than 12 mile offshore.

KP gave the exclusive mining right to his holders for certain mineral or metal, for several stages of the mining activity and the time that were determined in a certain KP area. Nevertheless, the KP holder for the exploration of the specific mineral will get the priority in the submission to get KP on the other mineral that was found in the same area. The holder of the general survey's KP will get the priority of the other submission in exploration of the KP in the same area. The holder KP the exploration will get the priority for the other submission in the matter of the exploitation of KP in the same area. The submission for the next stages in KP and its prolongation must be begun for the period of validity of KP that has been received.

Until this time, CoW is not yet be accept the ratification until mining act be amended and the amendment banded CoW as one of the methods of giving a mining right. Nevertheless, to get CoW still continued to be striven r through the process of the registration and the publication of the Surat Izin Penyidikan Pertama "The First Exploration Permit" (SIPP) or exploration permission. This kind of permission is published by the government of the level of the state, the province or local, depended on the location of the area that was included in this permission. The holder of this permission may come from foreign company. The holder of permission had the right to ask for KK license for such area or part of this area. The process of this request must get the agreement from the Director General GSDM (Geology and Mineral Resource) and all the levels of the government. Talks concerning the provisions and the condition for these CoWs and the compilation table from request CoW bring into Parliament to get legalization. Afterwards, these CoWs will be signed by DERM on behalf Indonesian the new Indonesian government after getting the ratification from the president. CoW will also be signed by an Indonesian company also be company which just formed.

The holder of the mining right entitled to conduct the exploration, construct the required infrastructure, and undertook the other mining activities using proper mining techniques and appropriate mining equipment. However at the same moment, the holder must get permission or the transfer from the holder of the surface right of the land. The holder of KP was required to give deposit the reclamation fund and obliged to send the initial report that detailed the mining plans, the production targets, and the annual and 3-monthly report in accordance with the required format that.

The obligations of COW contractors are wider and clarified in detail in the CoW. The special obligation of CoW contractor include: without limitation, is to train and employ the Indonesian citizen, maximised the benefit of economics and social in the regional level, empowerment business in the regional and local level (by

involving the regional and local level government in the financial program and the process), provided the public's access to the infrastructure and to be able to make use of it, like the air airport, the port, the road and bridge and pay levies and taxes to the regional and local government in accordance with the stipulation from central government, that was valid when CoW was signed.

The decentralisation and delegation of the authority regional government has resulted in attempts by such levels to collect addition levies, although the authority to take this levies still not clear or even not available. COW contractors are obliged to sell the mineral product in accordance with the price that was appointed in the international market, report the income from sales revenue, and justified the selling price.

If KK or CoW is advanced from general survey to exploration, feasibility study, mining construction and finally to the 30-year operating period, government approvals are required. The mine plan and the infrastructure must also get the government agreement. Since local autonomy area, in practice, it is meant the agreement from all the levels of the government in the included area. [30]

[30] idem

Chapter 5
Comparative Analysis

This chapter will analyze the condition of mineral policy in the Netherlands and Indonesia to understand the mineral planning system in both countries. The analysis will be done by implementation of criteria for careful land use on the mineral planning, which are sustainability, justice, and efficiency concept on the minerals. The summary of mineral planning policy in both the Netherlands and Indonesia will be elaborated in the last part of this chapter.

5.1. Mineral Resources

Resources of aggregate mineral in the Netherlands were concealed to deltas around the big rivers areas. This occurred because of Dutch geology did not enable to be source of the mineral formation in this territory. Whereas Indonesia, because of the influence of earth tectonics that formed magmatic arc through, made this country become the country that many volcanos and the mountainous areas which are rich in the source of the aggregate mineral.

The potential of mineral resources in the Netherlands is not located in all the provinces and regions evenly. This condition makes the inter-province and regions aggregate mineral distribution of and the region become important. On the one hand, amount supply from several kinds of aggregate, like fine sand and on the other hand there is not the existence of some mineral resources such as coarse sand and crushed rock made export-import between European countries became the important part of mining activities in this country.

From the supply and demand side, Indonesia can be said as do not have any problem. The mount of abundant mineral resources made Indonesia can fulfil its demand. One of the issues from the mineral planning in Indonesia is the problem of the distribution from those materials. Since not all the areas have enough

potential mineral resources that can fulfil material requirement themselves because aggregate material resources are spread evenly in every region, appear the mineral distribution issue. Generally the distribution issue of aggregate mineral happened only among inter-region or kabupaten/kota (regency/municipality).

Sustainability of Mineral Planning

5.2.1 The Netherlands

At the beginning, the mineral planning policy in the Netherlands has paid attention to the aim of sustainability aggregate mineral. This was proven by being included the principles of sustainable mineral in the Dutch National Spatial Plan. Planning of scarce mineral and interest towards the adequate requirement of mineral for the next generation become focus of this policy.

Recycling and the use of alternative and/or renewable minerals were important focus in the sustainable mineral policy in the Netherlands. Many researches that were carried out to achieve the policy plan. The research was considered to be successful enough to encourage mineral sustainable in this country, such as the use of wood as the alternative materials in constructing the housing and reuse of coarse sands to construct roads and bridges.

While the Netherlands has adopted market-oriented approach, the change happened in sustainability of the mineral planning policy in this country. Declining the sustainability is expressed from cancelling several parts of National Structure Plan on Surface Raw Materials that beforehand was connected with attempts that must be carried out to encourage sustainable mineral.

Despite many policies that supported sustainable mineral has been cancelled, but the interest of some provinces to continue to insert several policy about the importance of sustainable mineral are emerged nowadays. This condition can be seen from willingness of provincial government to hold and continue persistently sustainable mineral through Regional Mineral Extraction Plan of these provinces.

5.2.2 Indonesia

different from the Netherlands that put elements of mineral sustainable in its policy, Indonesia did not yet express explicitly about the importance of mineral sustainable in the national, provincial or local (regency/municipality) policy or regulations that arranged the mining sectors. It may be triggered by two factors. The first, it is because the wealth of abundant mineral in Indonesia was considered not as too important element to include sustainable mineral in part of the mineral planning policy. So the usages of the mineral today were considered not to endanger demand for the nest generation. The second factor is market-oriented perspective from most of Indonesian policies due to pressure from international institution, such as World Bank and IMF. In this market-oriented, policy give priority to more profit that will be received if the mineral production is increased. It means that, the government will receive the bigger revenue if production of mineral is also increased, through the tax and levies from mining companies to the state, regional and local government.

Although there is not national policy that explicitly states the sustainable mineral in the Indonesian mineral policy, several big companies and the university have conducted the research in this case. The researches are still limited merely done by big companies and the university. This is because of their awareness to the environmental condition (forced or themselves awareness), so they tried to make useful of their waster by reuse their production waste that they produced. The researches are still limited in the use alternative material as the replacement of primary materials.

As mentioned above, the one hand, the researches are conducted by big companies because they have huge financial affordability to finance the available research. On the other hand, their awareness in the environment around their company due to the waste which they produced also becomes the determinant factor. This awareness generally emerges rather because of the pressure to pacify

their mining activity because the environmental problem will be able to stop their activities. And indeed, it is the fact that these companies become producer of the big waste.

Justice of Mineral Planning

5.3.1 The Netherlands

In the Netherlands, landowners do not have right to refuse the research for potential mineral in their land. The government, on behalf of the Minister of Transport, Public Works and Water Management or provincial executive could force the landowner to allow the research conduct the potential mineral research on their land. Because of the Netherlands does not have clear rule regarding mineral exploration, then the regulation in this case use private and public law.

Based on the Dutch regulation, for the permit process, someone could proffer objection against draft environmental permit (decision) that was issued by the government as the authorization. Hence, everyone has the same right to state the objection to the government policy and the right is protected by the legal law.

5.3.2 Indonesia

Different from the Netherlands, in Indonesia, for the stage of mineral exploration, the landowners can disagree to the mineral research in their lands. There is no explicit rule that could force the landowners to allow the mineral research in their land, in fact this also applied to the type of strategic mineral. In practice, there are usually negotiations between the landowners and applicant or company to obtain that research permission. Usually the landowners is paid with amount of money and they also be promised to receive the sharing of the profit if such potential minerals is found in their land. The profit sharing will be given while the mining activity is operated.

There are several unjust matters in Indonesian mining regulations, not only for the community around mining location and but also for the mining investors. Even

though the aims of this regulation are to reach more conducive mining activity and give bigger opportunity to the domestic investor, but this policy also effect bad impact to the mining investment in this country.

Several matters that are seen unjust from the mining regulation and the policy of the mineral planning in Indonesia are: lack of adduction from the community's side, lack of attention for community development and human rights, and do not give the same treatment for all the stakeholders.

Efficiency of Mineral Planning

5.4.1 The Netherlands

In the Netherlands, before granting excavation permission, applicant has to get receive environmental permission. But environmental permission that was required not merely one permit and that environmental permission is not integrated with other environmental permission procedure base, such as The Pollution of Surface Water Act. Due to this regulation, the applicant must grant more than one kind of permission which connected with environment. This policy forced the applicant to obtain more permission for one excavation location.

Administratively, the applying of the environmental permission is also carried out through two different administrative levels. For the permission regarding Nuisance Act is authorized by municipal executive. Meanwhile provincial executive address the environmental permission regarding complex situation such as the Waste Act, the Abatement Act, and the Air Pollution Act. The authority board needs six month to make decision only from the Administrative Law Act applied to preparation of the decision.

Based on these permission regulation, the applicant or operator are needed very long times to obtain one excavation permit. It need 10 to 25 year for granting one excavation permit only. Long permission procedure and many administrative bureaucracies needed make it become inefficient. Many and long procedures

means the applicants has to spend more time and definitely it would be more costly because they have to pay staff and officer before they do excavation. And this condition will not be able to resolve the problem of fast market requirement for the mineral demand.

5.4.2 Indonesia

According to Indonesian regulation and mining act, the authority which give mining permission depend on where the location of the mineral. If they are located in transboundary between two governments then the higher level of government has the right to provide this permission. If the mineral permit location lies between the regencies or municipalities (kabupaten/kota), then mining permit is given by the provincial government and if the location is in two or more provinces then the authority to give the mining permit is held by the central government.

Procedures that must be followed through obtaining permit for certain kind of mineral which only needed SIPD can be said as easy procedure. Applicant only needed the signature of statement letter from the landowner that stated willingness to excavate his land and the signature from the adjacent landowners to allow the excavation activities, the exploration report that was equipped the map, and the environmental report (UKL/UPL or AMDAL) to obtain excavation permit. Generally it only needed three months to grant an excavation permit.

The other ease in obtaining mineral permit in Indonesia is the ease to get permission to excavate the different mineral in the same location. The exploitation of the new found only need to get new excavation permission and mining company that had permission in the location has the main priority for the submission of that excavation permit. Therefore, the company might not follow the permission process from the beginning anymore, but it just give the exploration report to prove the new mineral has potential reserves to be excavated and be convinced by the mining plan of the company.

The Summary of Mineral Planning Policy

Based on comparing analysis above, the summary of mineral planning policy between the Netherlands and Indonesia regarding sustainability, justice, and efficiency criteria can be seen in table 5.1.

Table V.1. Summary of mineral planning policy between the Netherlands and Indonesia

Description	The Netherlands	Indonesia
Sustainability:		
Former	Plan-led - Principles of sustainable mineral were stated in the National Spatial Plan. - Recycling and the use of alternative and/or renewable materials.	Market-led - No regulation stated sustainability of mineral concept - Sustainability mineral research was conducted by big companies and universities - Limited only focus on the use of alternative material as the replacement of primary materials
New	Market-led - Declining the sustainability of mineral - Many guideline regarding sustainability has been cancelled from National Structure Plan on Surface Raw Materials	Idem
Justice:	- No clear regulation regarding mineral exploration → use private and public law. - No objection right of the landowner regarding research potential mineral. - People can make an appeal of draft environmental permission	- Landowner have right to reject the research of minerals on their land. - Negotiation between landowners and mining company. - Different treatment between domestic and foreign investor.
Efficiency:	- Many procedures and permissions. - Environmental permission is authorized by two different administrative levels. - Need about 10 – 25 years to get excavation permit	- Less procedure. - Permit is authorized by one administrative level. - Need 6 – 12 month to get excavation permits.

Chapter 6
Conclusion and Recommendation

This chapter will conclude the remarks of the mineral planning system in the Dutch and Indonesian mineral planning based on criteria for careful land use on mineral planning. Then, on the last sub-chapter will compare the result of analysis of mineral planning system in the Netherlands and Indonesia with optimal model of mineral planning system based on criteria for careful land use.

6.1. Conclusion

Mineral planning can not be separated from spatial planning because mining will affect the spatial. On one side, mining activities will trigger regional economic development by means constructing of infrastructure and giving job opportunity to the local citizen. On the other sides, mining will give bad impact to the environment. Many ponds is caused by aggregate's excavation, soil is losing its fertilized. And the most harmful is water has been polluted by heavy metal element such as arsenic and mercury.

In the European countries, types of planning system regarding to land use planning can be distinguished become four different styles of the formal system of planning: Regional Economic Planning Approach, Comprehensive Integrated Approach, Land Use Management, and Urbanism Tradition. These European planning tradition approaches are characterized based on seven significant and inter-related factors, they are: "the scope of the system, the extent and type of planning at national and regional levels, the locus of power, the relative roles of public and private sectors, the nature of the system of law, constitutional provisions and administrative traditions, the maturity or completeness of the system, and the distance between expressed objectives and outcomes".

In Regional Economic Planning Approach, respect to the performance of the entire social and economic objectives, particularly with regard to disparities in wealth, employment and social conditions between different regions of the country become the sense of spatial planning. In this approach, the management of the development pressure in the whole country, and making public investments are important tasks of the central government. Otherwise, conducting planning through a very systematic and formal hierarchy of the plans from central to local level and the coordination of public sector activity in the various sectors but still focus on the spatial coordination rather than the economic development are characteristics of Comprehensive Integrated Approach planning tradition.

In tradition of Land Use Management approach, planning is closely linked with the limited task of controlling the change of use of land both at the strategic and local level. For example is in UK where local governments undertake the largest part of the planning work, but the central government is able to exercise a degree of power, both by means of monitoring the system and for the establishment of the central objectives. Finally, Urbanism tradition is characterized by implementing the regulation through rigid zoning and codes. a strong architectural taste and concern with urban design, townscape and building control become the basic idea of this tradition. Even though there is a multiplicity of laws and regulations, but the systems are not as well developed and also do not have the command of major political priority or general support of the government.

Based on its extent to which the realisation of planning or its objective, in general planning can be classified into two types, they are government-oriented and market-oriented planning approach. When government intends the plans for other people who are executed, mostly by the government, it means that the planning is government-oriented or plan-led planning approach. In this approach, the government has a vital role in shaping the objective of the plan process, from proposing the regulations to making the decisions. The roles of market or private sectors are less or may be none in the planning process and the planning will not

give the direct profit to the private sectors. On the other world, government has strong power to plan, implement, and control the planning.

Market-oriented planning approach is defined when the objective of planning which made mainly for private sectors' interest. The role of government is weak; indeed the government sometimes does not have power in decision making process. This approach usually considers how the firms or private sector can gain the profit and finally it will run the economic activity.

There are some required criteria for determining careful land use related to mineral planning. These criteria are needed to limit the broader justification in the mineral planning policy and function to get the optimal planning system on mineral planning policy. The criteria are used to see whether government or planning-oriented approach or market-oriented approach as optimal planning system on mineral planning. From literature review, there are three important criteria to analyze the role of government and market on careful land use planning for mineral planning system to get the optimal policy approach. These indicators are sustainability, justice, and efficiency on mineral planning system.

Sustainability on mineral planning can be elaborate from the policy support the use of renewable minerals, recycling the materials, and the changing of primary materials. Justice on mineral planning can be seen from the treatment of mineral policy to the stakeholders. In this case, the involved stakeholders who can get direct impact of extraction location are investors, land owner, and the community surrounding the area. For the third criteria, efficiency in mineral planning can refer to the issuing extraction permission. The duration time needed for granting an excavation permit become indicator in this criterion.

For sustainability criterion, the government-led is better rather than market-led in handling careful land use for mineral planning. The non-profit oriented become the reason of this criterion. Sustainability does not put profit in its concept

because it holds the most economical ways for the next generation. Otherwise, with its profit point of view, sustainability will not become better approach led by for market-led.

Justice in mineral planning can be applied in the form of the treatment for the investors, land owner, and community surrounding the excavation site. The same treatment for all investors, respect on the land owner right and community in surrounding the mining location from exploration activities for granting exploitation or excavation permission become the important indicators of justice criterion. In this case, the government-led is still the better position in achieving optimal justice in mineral planning because its vital role in proposing the regulation and power can control this fair justification.

Efficiency in mineral planning can be indicated by reducing negative cost, time, and administration. These components are strongly related to duration time of issuing excavation permit by the authorities. The longer administration procedure means that the longer time for granting excavation permit, the more cost which has to pay by the applicants, because they have to spend more expense such as pay for office facilities, electricity bill, salary of staff. Therefore, for efficiency criterion, the better approach is handled by market-led because the primary goal of market is how to get maximum profit with reducing negative cost and time consuming for granting the excavation permit.

In the Netherlands, all level of governments, from central to local, have important roles in mineral planning. The regulation regarding to mineral policy is task of national level, the regional government responsible for its Regional Mineral Extraction Plan, whereas the local government (municipality) applies this policy with its Local Land Use Plan. The requirement of the globalisation lately affected the shift in the mineral planning system on the Netherlands. The policy shift from government-led oriented approach to market-led oriented approach made this country undergo changing in its policy.

The change of the Dutch mineral planning from government-led to market-led planning is not always making the better side for the policy. There are several matters on the contrary experienced declining. The declining occurs especially in the matter of sustainability of the mineral planning.

In the sustainable mineral, the change that happened resulted in the demand for the market become main consideration from the mineral policy in the Netherlands. Market is not limited only inside the country, but farther that is how could import material that limited or non potential from the other country and vice versa, sold the mineral surplus to the other foreign countries. because of the non limited boundary of the country, then maintained sustainable mineral may be felt not so important because the material that is needed can be received from the producers of other countries. As resulting from the policy that was taken, many guidelines that beforehand included elements of sustainable minerals/materials has been cancelled because it was thought as an unnecessary issue.

On the Dutch regulation, land owners do not have right to refuse the research of mineral in their land. They should allow the research of potential mineral on their land. But instead, the right of community to refuse by appealing the draft of the environmental permit is guaranteed by the law. This appeal is addressed to the state council, and usually need 1 year for appeal procedure.

In the Netherlands, the authorities in mineral planning for an extraction permit are task of province and municipality. These two different levels of authorities responsible for different kind permission for an excavation permit. For more complex situation concerning the Waste Act, Noise Abatement Act, and the Air Pollution Act is authorized by provincial government, whereas the Nuisance Act's cases are in municipality's task. In the Netherlands, the permit procedure from applying to granting an excavation permits need 10 or even 25 years.

Even though Indonesia has been more than 10 years in its reformation era and almost 10 years since decentralized regional government act has been launched, the mineral policy has been not changed yet. The draft of new mining act has launched but it has not been act yet. This condition has become crucial thing due to the authority of mineral generally become local government task.

Sustainability, although has been broader concept, is not clearly stated in the Indonesian Mining Act. How to achieve and whose task to lead it is still vague. There are some effort which indicated as sustainable materials but still done by the big company and researchers from universities. The aim of it is merely how to make use of the waste materials and tailing become useful materials for construction. The purpose of this research is to substitute primary materials with alternative aggregates.

Justice on Indonesian mineral policy can be seen from two points of view, which are right of land owner and the treatment of investors. Different within the Netherlands, the land owner have right to refuse the exploration of mineral in their land in Indonesia, even though Indonesian Constitution states that all natural resources in this country belongs to the State. Unjust appears in policy concerning the treatment for the investors. Indonesian policy makes treatment between domestic and foreign investor which purposes to protect the citizen.

Due to a level government's authority in issuing permit, efficiency in mineral policy can be implemented in Indonesia. The procedure of permission is not very complicated. Officially, only need local government to issue mining permit. The higher level of government's task is only when the excavation location overlay in lower level. The provincial government issues permit which located on two or more regency/municipality and the central government handles for granting mining permit on transboundary provinces.

6.2. Recommendation

There are some notes for getting optimal mineral planning system for the Netherlands and Indonesia. They are:

Compared to previous mineral planning system, the Dutch mineral planning is declining in its sustainability of minerals. It occurs because shifting in mineral approach in the Netherlands, from government-oriented becomes market-oriented approach. The declining of sustainability in mineral planning is illustrated from cancelling some guidelines related to sustainable materials in the National Structure Plan on Surface Raw Materials.

Due to the limitation of certain materials in the Netherlands, the mineral planning policy has to take into account in its policy to secure the future supply. Enough materials as a result of importing from other surrounding countries may be consideration of this new policy. But for requirement of next generation, the sustainable material should be stated in the policy because it is a vital concept and holistic issue in overseeing unpredictable future condition.

There is no right of land owner to reject the research of potential mineral resource in their land is a better way to fasten the excavation activities process. The research or initial survey does not mean that the excavation will be done yet. This research is also needed to invent the mineral resources and it is necessary to look after the future generation's supply. Therefore, even though this seems to be unjust, but it will make justice for future generation (sustainable mineral resources).

For achieving more efficient condition on mineral planning policy, the procedure of granting excavation permit has to be fastened. Less procedure means more efficient and on the contrary, longer procedure will result more costly, time consuming, and finally will not be able to fulfil short term market demand. Hence, inefficiency will not be able to answer unpredictable future demand condition. For this purpose, in line with market requirement, the long term procedure of granting

excavation permit on mineral planning policy in the Netherlands has to cut the long administrative procedure.

Not in my back yard (NIMBY) problem causes rejection of community for excavation activities in most of areas in the Netherlands. To solve this problem, the provinces put 'multi function quarry' in their regional plan. Whoever wants to grant an excavation permit has to make a good environmental plan. This plan should provide multi functions of quarry, from exploitation to restoration phase. The best environmental plan of applicant will be the holder of excavation right.

Based on the model in chapter two, to get the optimal planning system for mineral planning, the Netherlands has to keep its sustainable mineral concept on its policy. The concept of sustainability has to put again in its policy to keep the requirement mineral resource for the future generation. In line with sustainability, efficiency has to improve by the way of fastening the permit granting procedure. Another way to achieve efficiency and sustainability is by holding the role of government to be able to force the land owners in doing the potential mineral research in their land because this way can make good climate of investment.

There is no explicit statement in Indonesian mineral planning policy regarding sustainable materials. The abundance of mineral resources and unawareness of decision makers may be the reason of this absent concept. Even though Indonesia has a great amount of minerals supply, the concept of sustainability has to put into mining policy because some regions have enough supply of their needed materials but other regions are still needed other regions to obtain their demand. Even some kinds of minerals are scare and have high price in the world market. For example is iron ore, where some factories import from Latin America's countries.

Justice on mineral policy in Indonesia only occurs in the initial survey or exploration in which the land owners have right to state their objection for exploration activity in their land. Unfortunately, sometimes this determinant right

of land owners become obstacle in mining investment. Blandishment from other party often triggers conflict not only between land owners and mining company but also between land owners. Even though this conflict can be solve based on negotiation, some investors sometimes feel unsecured and bring back their investment and find new other locations. On the next stage, existing regulation gives different treatment between domestic and foreign investors. The aim of this policy is to protect domestic investor, but in fact this policy makes foreign investor disincline to invest their capital in this country. The facts that the great amount of capital in mining sector come from foreign capital. The same treatment for all investors has to do to achieve optimal mineral planning system in Indonesia.

Process for granting mining permit in Indonesia can be said efficient because the procedure only in one level of government. The problem usually arises on the beginning of application regarding environmental document such as AMDAL or UKL and UPL (EIA document), but this matter can be solved through intend of applicant to repair their environmental plan. This efficient procedure becomes trigger to attract the capital from investor on mining sector. Therefore, this concept has to keep so that the ease of granting mining permit will call the investors and finally will give multiplier effect to other sectors.

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