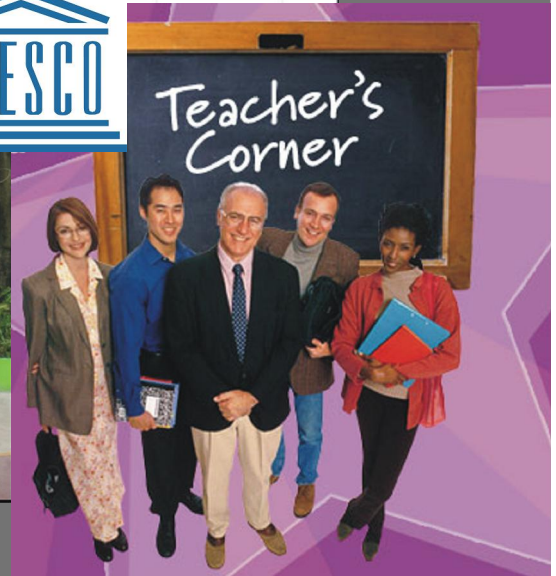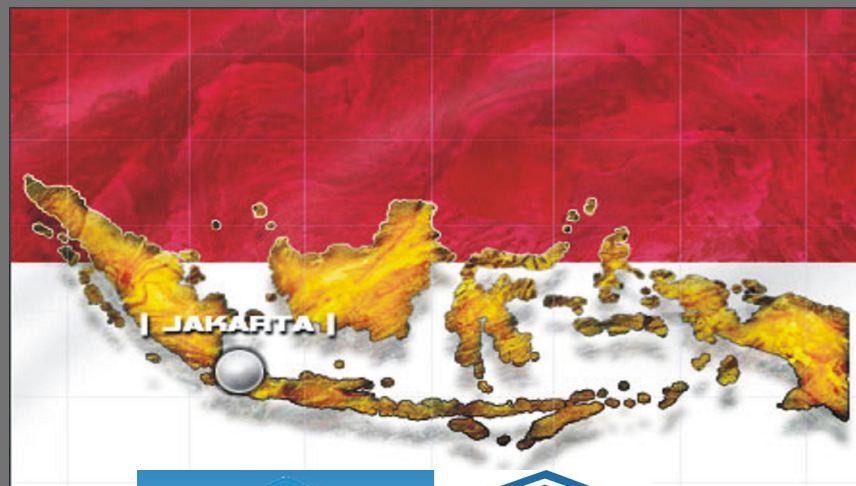2010

Evaluating Teachers' Quality Improvement Policy in Indonesia
To meet the UNESCO-EFA criteria

Widyani M. Hapsariputri

Master Thesis in Technology, Policy and Management

17/08/2010

FINAL THESIS REPORT

Evaluating
Teachers' Quality Improvement Policy
in Indonesia

To meet the UNESCO-EFA criteria

Widyani M. Hapsariputri
1531948
17/08/2010

Thesis Committee :
Chair : Prof. Dr. Ir. W.A.H Thissen (Policy Analysis section)
First Supervisor : Dr. Ir. B. Enserink (Policy Analysis section)
Second Supervisor : Prof. Dr. W.M. de Jong (Policy, Organization, Law and Gaming section)
External Supervisor : Dr. Ir. T. D. Kunaefi (Ministry of National Education and UNESCO representative)

Section Policy Analysis
Engineering and Policy Analysis
Faculty of Technology, Policy and Management
Delft University of Technology

TUDelft
Delft
University of
Technology

EXECUTIVE SUMMARY

Indonesia as one of the state members of UNESCO committed to achieve main goal of Education for All (EFA) UNESCO which is to improve education quality in the world. The education quality is inseparable from the teacher quality. Therefore the UNESCO and Indonesia put high concern to improve the teacher quality. Since Indonesian Government put high effort to achieve the UNESCO goal, the policies need to be evaluated in order to analyze whether those policies have met the criteria of EFA-UNESCO or not. A policy recommendation is presented if the policies are not effective to improve the teacher quality in Indonesia.

Three research questions are answered in this research: (1) To what extent has the Indonesia government met the teacher quality of EFA? (2) What factors influence the criteria that have (not) met the EFA goal? (3) What role can the Ministry of National Education put to support the Indonesian government to achieve the EFA goal in more effective way?.

In order to answer the research questions, three major methods were used: desk research, interviews, and policy analysis using causal relation diagram and multi criteria decision making. The desk research includes the literature studies of the related institutions reports such as UNESCO and Ministry of National Education. The interviews are executed via telephone to the related actors. The causal relation diagram is used to analyze the problem by capturing the teacher quality system and to identify what are the influencing factors. The policy analysis methods like system diagram, means end diagram, and actor network analysis is used to analyze what policy means can be proposed to solve the problem. Lastly, the proposed policy robustness is tested using a scenario analysis.

Based on six criteria from Task Force on Teacher for EFA (TFTA) UNESCO, Indonesia is considered to fulfill the number of teacher needed, gender balance in teaching profession, and has good policies to improve teacher quality. However Indonesia still has to increase the student survival rate, lower the student repetition rate, and has to train and recruit many teachers. Indonesia is categorized as a country with the moderate level of achievement.

When we look deeper to the Indonesia teacher condition and compare the assessment based on TFTE UNESCO criteria and Indonesian Government criteria, we can capture a different conclusion. According to UNESCO criteria, Indonesia fulfilled the teacher number needed but the unbalance teacher distribution leads to shortage number of teachers in many areas, especially the rural areas. The UNESCO also concludes that the gender balance in teaching profession has been achieved but we can see gender disparities since more male teachers are holding undergraduate degree. Moreover although the certification policy to improve the teacher quality is good in its implementation; a problem occurs after a teacher is certified. Many teachers cannot acquire their professional allowances because they cannot fulfill their obligation to teach 24 hours.

There are two big problems which hamper the teacher quality improvement: (1) the unbalance teacher distribution between cities and rural areas and (2) the high teacher workload. The unbalance teacher number hampers teachers to fulfill their obligation to teach 24 hours per week. Meanwhile the high teacher workload limits teacher self-study time. The formulation of new teacher distribution management policy at province and national level is recommended to balance the number of teacher in the rural areas and the cities. When the district cannot fulfill their need of teacher, the province government helps to manage the teacher movement from one district to other district within the province; and when the province cannot fulfill the need of teacher, the

Ministry facilitates the teacher movement from one province to other province. Meanwhile comprehensive teaching method development is recommended to reduce the teacher workload and to increase their quality. This comprehensive teaching method includes the teacher guidebook, student book, evaluation book and innovative teaching tools.

Table of Contents

List of Figure

List of Table

Acknowledgement

Chapter 1. Introduction

Indonesia as one of the state members of UNESCO commits to achieve the targets of Education for All (EFA) UNESCO to improve the education quality. By accepting a premise that quality teachers produce quality students, since 2008, the state members of UNESCO emphasized the importance of the teacher quality to achieve the main EFA goal of good education quality (Task Force Division on Teachers for EFA, 2008). Therefore, a general consensus to put high attention to teachers' quality has emerged. Indonesia put this program high in their development agenda by developing breakthrough programs, mobilizing resources and synergizing efforts, such as the teacher certification program.

Since Indonesian Government has put high effort to achieve the UNESCO goals, the policies and programs need to be evaluated in order to analyze whether those policies and programs have met the criteria of UNESCO-EFA or not. A policy recommendation will be presented if the policies are not effective in meeting the EFA goals.

1.1. Research Objective

This research will focus on the EFA consensus to address the teacher gap and improve the teacher quality in Indonesia. The evaluation will be based on the quantitative indicators used by the Task Force Division on Teachers for EFA and the Ministry of National Education operational criteria and targets on teacher quality as shown in Figure 1.
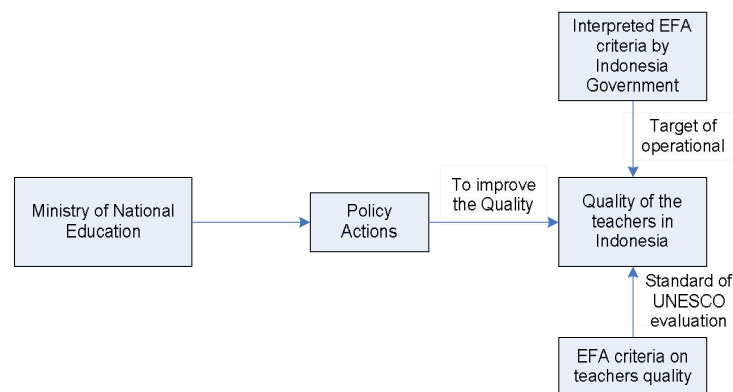
Figure 1. The research objective

A qualitative study will be used in this research to understand the real problem and the underlying causes of the low teacher quality based on the primary sources. Then a policy recommendation will be proposed and analyzed. The research materials to understand the real problem and the underlying cause will be collected from the interviews to the related actors and experts. Since I will do the interview through phone calls, instead of going to Indonesia to collect the data, the number of interviews will be limited and might not represent the whole Indonesia condition. This is caused by the most interviewees may consist of the teachers and other actors from Yogyakarta city. Since I come from Yogyakarta, the teachers interviewed will mostly come from Yogyakarta meanwhile the data from Ministry of National Education to UNESCO is the country report which presents the

national statistical data. In conclusion the analysis result might not represent the whole Indonesia condition.

1.2. Scope of the Research

This research focused on the teachers who are still actively teaching in the schools at the Basic Education level: Primary School teachers and Junior High School teachers. The teacher of Early Childhood Care and Education, Senior High School, Vocational School are not included in the research boundary. Moreover the teachers of Religion are also excluded from this research because they do not reside under the Ministry of National Education. They reside under the Ministry of Religion Affairs. The Certification process for the teachers of religion is also managed by the Ministry of Religion Affairs. This is based on the mutual decision between Director General of Directorate General of Quality Improvement of Teacher and Educational Personnel and the Secretary General of the Department of Religion.

1.3. Research Method and Data Sources

In order to guide the research, three main research questions are used as follows:
1) To what extent has the Indonesia government met the teachers' quality for EFA?
2) What factors influence the criteria has (not) met the EFA goal?
3) What role can the Ministry of National Education put to support the Indonesian government to achieve the EFA goal in more effective way?

Some sub-research questions are used to assist the research in the right track. The sub-research questions are:
1) What are the EFA criteria?
2) What indicators are used to evaluate the teacher quality?
3) What is the current teacher condition in Indonesia?
4) What has the Ministry of National Education done up to now?
5) What are the successes and the failures of the Ministry of National Education policies?
6) What are the causes according to the actors? What are the opinions of the different stakeholders on this issue?
7) What do we learn from the analysis of the problem cause to improve the achievement?
8) How can we improve the achievement through appropriate policies?
9) What policy is the robust policy to improve the achievement in more effective way?

The first three sub research questions are used to assist the first main research question. In order to answer these questions, a literature study is carried out. Meanwhile the fourth and fifth sub research questions are used to assist the second main research question. These questions will be answered by performing interviews to the actors. The last main research question is assisted by the last three sub research questions. In conclusion, the desk research and interviews are used to collect the data. In order to guide the research, a research framework is used as presented in Figure 2.
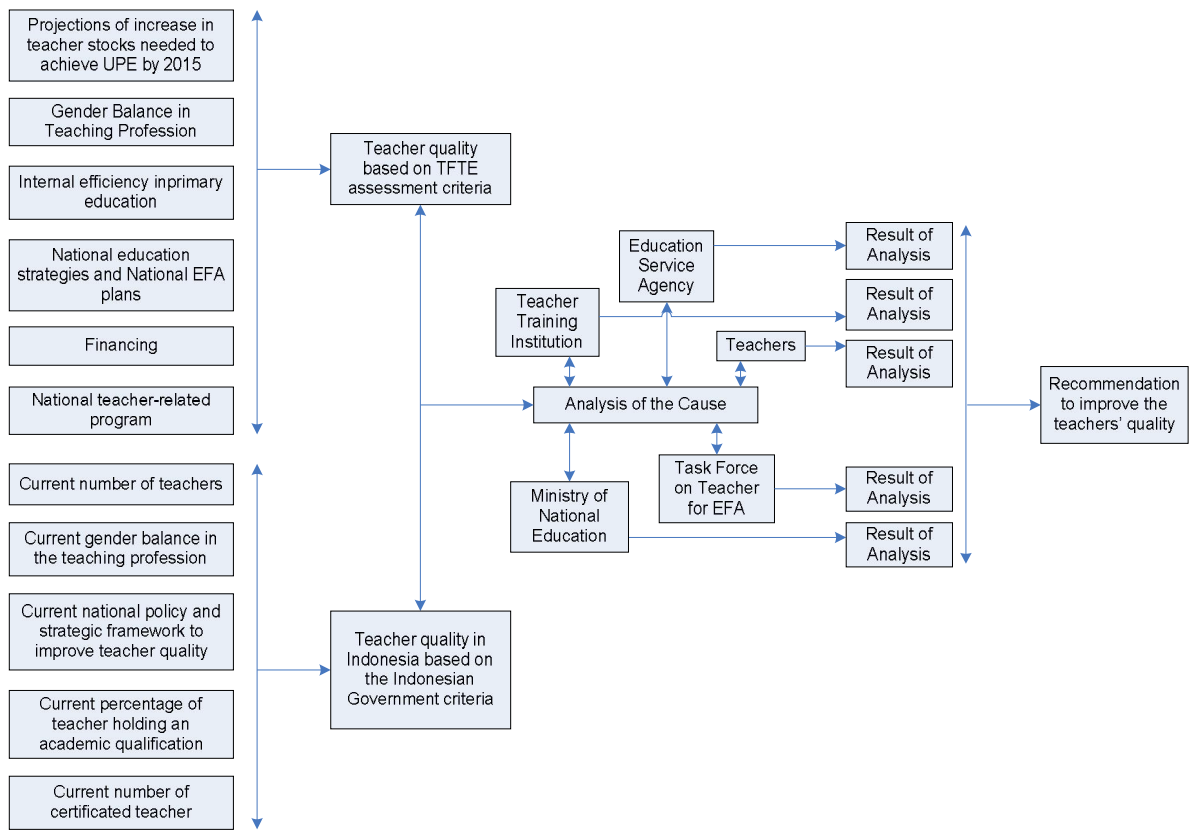
Figure 2. Research framework

The research method consists of three major activities: the desk research, interviews, and policy analysis using causal relation diagram and multi criteria decision making. The desk research includes the literature studies and the studies of the related institutions reports such as UNESCO and Ministry of National Education. The literature study activity focus on the theory of education system in Indonesia, theory of teacher quality and other theories related to this research. Meanwhile the institutional reports studies focus on the reports regarding to teachers development program. For this research, the data is collected from the UNESCO in Paris, the Task Force Division on Teachers for EFA, and the Ministry of National Education in Jakarta.

1.4. Structure of the Report

This research report is divided into seven chapters. After presenting the picture of the problem and the research method in this chapter, the explanation about the theoretical background and the scientific literature is elaborated in chapter 2. Chapter 3 will thoroughly discuss the analysis of the current teacher quality problem while the chapter 4 deals with the alternative means to solve the problem. Chapter 5 elaborates the policy recommendation and implementation. Chapter 6 discusses proposed policy robustness. The seventh chapter is divided into two parts: the conclusion and the further research recommendation.

Chapter 2. Exploring Education for All, Indonesia Teacher Quality and its Education System

This chapter provides the theoretical components related to this research. The first part will give an overview on the program of Education for All (EFA) and its supporting task force and policies. The second part is dedicated to discuss about Indonesia, its education system and policies. The third part will elaborate the current status of teacher quality in Indonesia and its improvement programs.

2.1. Description on UNESCO and EFA

This part will review the UNESCO and EFA program in section 2.1.1 and 2.1.2 respectively. Furthermore the explanation about the Teacher Quality Importance for EFA will be presented in section 2.1.3, and the EFA Criteria Interpretation by the Indonesian Government is discussed in the last section.

2.1.1. Introduction to United Nations Educational, Scientific and Cultural Organization (UNESCO)

The United Nations Education, Scientific and Cultural Organization (UNESCO) is an international organization with 193 member states and 7 associate members with five major programs: education, natural sciences, social and human sciences, culture, and communication and information. "The main objective of UNESCO is to contribute to peace and security in the world by promoting collaboration among nations through education, science, culture and communication in order to foster universal respect for justice, the rule of law, and the human rights and fundamental freedoms that are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations" (Stukel & Feroz-Zada, 2010). In other words, the UNESCO objective to attain quality of education for all and lifelong learning, utilize the science knowledge and policy for sustainable development, foster the culture diversity, and form and develop inclusive knowledge through information and communication.

UNESCO is an expertise organization performing technical co-operation to member states to advance, transfer and share knowledge and specialized information through research, training and teaching activities to improve the nation development. Therefore UNESCO works to create conducive atmosphere for dialogue between all stakeholders to achieve global visions to develop education, alleviate the poverty and encompass the human rights (Otchet & Frostell, 2009).

The UNESCO headquarter is in Paris, France

2.1.2. The Overview of the Education for All (EFA)

A continuing struggle caused by difficulties to universalize education, has enforced the UNESCO and its member states to collate in a coordinating work with numerous organizations, governmental and non-governmental and many UN agencies in order to reach this goal. The first and foremost

coalition was launched at Jomtien, Thailand in 1990. Member states agreed on six dimensions of EFA as a guide toward this goal.

It was not expected that within a decade all of the member states would meet all of the targets set. Several achievements have been reached after 10 years working on this issue. However some constraints and setbacks need to be assessed and new scheme should be specified. Therefore new criteria were set in 2000 based on the Dakar Framework (Skilbeck, 2006). Barry and Brun (2000) mentioned that the new EFA criteria are drawn from the outcomes of the regional EFA conferences and the international development targets to which countries are already committed so it is global in nature. These criteria are more precise than the EFA Jomtien dimensions, and specified as follows (Skilbeck, 2006):

1) Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantage children;
2) Ensuring that by 2015 all children, particularly girls, children in difficult circulstances and those belonging to ethnic minorities, have access to and complete free and compulsory primary education of good quality;
3) Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills and programs;
4) Achieving a 50% improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults;
5) Eliminating gender disparities in primary and secondary education by 2005 and achieving gender equality in education by 2015, with focus on ensuring girls' full and equal access to and achievement in basic education of good quality;
6) Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

The EFA implementation is cored in the country level, therefore each country member should set its own operational goal; include the immediate goal, the final goal and the time line. In order to achieve the EFA goals, the countries should set it as priorities, define the policies in national level to force the program in their country, allocate resources, monitor the performance and assess the qualitative and quantitative outcomes (Barry & Brun, 2000). The EFA implementation will be monitored by UNESCO at the national, regional and international levels. Firstly, the member states prepared the national EFA plans in 2002. The second report is given by each country in the midway in 2007. The final report will be presented in the end of its implementation, in 2015. During its implementation, UNESCO will arrange a high-level monitoring and technical and financial resource mobilization in order to keep its role in coordinating the EFA partners and maintaining the collaborative work.

2.1.3. Teacher Quality Importance to reach EFA goals.

After the EFA Dakar goal declaration in 2000, UNESCO intensively does researches and studies on new initiatives to force the EFA reaching goal. In 2008, it was realized that the teacher is the key to reach the EFA goals (Suharwoto, 16 Maret 2010). The six EFA goals will not be reached without good quality teacher. Hence a Task Force on Teacher for EFA is established in 2008. This task force

has responsible to conduct researches and give a technical support in the country level by providing consultants and experts to assist the countries in improving the teacher quality. The team of experts consists of consultants from different countries, usually a combination of developed and moderate country. This team has a main responsible to help the governments that are seeking solution by giving recommendations and solutions.

Realizing the importance of the teacher role, the Task Force on Teacher for EFA held a meta-analysis on teacher problem and teacher gap in the world. In summary, there are three main problems which need to be considered in solving the teacher problem and improving the teacher quality. The problems are the lack of national policy on teacher, government capacity and capability to manage the teachers, and the lack of national fund on teacher (Suharwoto, 16 Maret 2010). These problems will be elaborated below:

1. **The lack of national policy on teacher**
   Many countries do not have any policy or regulation to protect their teacher quality and profession. Moreover some education policies are declining the teacher quality. This problem can indicate the low government will to improve the teacher situation in the country (Task Force Division on Teachers for EFA, 2008).

   In the case of Indonesia, the government had a program of the primary school expansion (SD Inpres program) in 1978. This policy had decreases the teacher quality (Jalal, et al., 2009; Suharwoto, 16 Maret 2010). In the late 1970s, the Indonesian government put high attention to the school building meanwhile less attention was given to the number of teacher needed. Therefore, in order to meet the high demand of teacher as a result of rapid number increase of primary school, there were many less qualified teachers was hired. The selection process became less selective; therefore the quality cannot be maintained. Fortunately Indonesia has its education reform in 2003 and already starts to put high consideration to teacher qualification in 2005. Because of its high concern on teacher quality, this Indonesian specific policy and regulation on teacher and its quality become one of the best practices in the world on how to improve the teacher quality (Kunaefi, 2010; Suharwoto, 16 Maret 2010).

2. **The lack of National Teacher-related Program**
   This issue needs a good political will and government capability to identify the teacher problem in the national level and assess their potential for scaling-up its quality (Task Force Division on Teachers for EFA, 2008). When we look at Indonesia case, it can be said that Indonesia already have a comprehensive program to improve the teacher quality, starting from reforming the higher education as an institution to educate teacher and improve their knowledge, a certification program for teacher and continuous professional development for teacher. From this comprehensive program, it can be seen that Indonesian government has put teacher quality highly in their agenda.

3. **The lack of national fund on teacher**
   The financing issue becomes a critical problem in many countries, especially for the less developed countries. The teacher salaries should be able to give them prosperity (Task Force Division on Teachers for EFA, 2008). For the Indonesia case, Indonesia need to expense large

part of its national budget to pay the teacher salary since it has a big number of teacher. Previously, it took 80% of the total national fund for education. Nowadays, the Indonesia law government has stated that the total national fund for education is minimum 20% of the total national budget. In addition teacher salary should be excluded from this fund. This fact becomes one of the best practices on national fund on teacher issue (Suharwoto, 16 Maret 2010).

The Task Force on Teachers for EFA develops a tool to capture the teacher gap all over the world. This tool consists of quantitative and qualitative indicators. The quantitative indicators address three issues: 1) Projections of teacher needs are required to achieve Universal Primary Education (UPE)[1] by 2015; 2) Gender balance; 3) Internal efficiency in primary education. Meanwhile the qualitative indicators also capture three issues: 1) National Education Strategies and National EFA plans; 2) Financing; 3) National teacher-related programs.

The first quantitative indicator of teacher need projection is mainly used to support the second EFA goal: improving access for all children, particularly girls, children in difficult circumstances and those belong to ethnic minorities, to free and compulsory primary education of good quality. It consists of three projections, i.e. (Task Force Division on Teachers for EFA, 2008):
1. Projected total % increase in the number of teacher posts needed to achieve UPE by 2015, from 2006.
2. Projected absolute increase in the number of teacher posts needed to meet UPE by 2015, from 2006 (in thousands)
3. Projected total number of teachers needed (in thousands) between 2006 and 2015 to meet attrition and UPE needs (6.5% attrition level scenario)

The second quantitative indicator of gender balance in the teaching profession covers the percentage of female teachers. The gender balance becomes a very important factor since large gender disparities among teaching forces have an impact to education demand from the girls and young women (Task Force Division on Teachers for EFA, 2008). When there is a lot of female teacher, then more parents will allow their daughter to go to school. This case mostly occurs in the country where girls are kept home by their parents due their beliefs or culture.

Meanwhile the last quantitative indicator of internal efficiency consists of four matters, i.e.:
1. Pupil to teacher ratios of 40:1
   It is indicated that a good quality of education might be reached if 1 teacher can only teach of maximum 40 students in one study group.
2. Percentage of primary/secondary trained teachers.
   Given the variety of country capability and teacher training practices in terms of minimum teacher requirement, the criteria of trained teacher has not been able to set up by the task force. Moreover only few countries have relevant data to this indicator.
3. Teacher motivation, management and support

---

[1] The Universal Primary Education mentioned above is the second United Nations Millennium Development Goals, more specifically it is stated to "ensure that by 2015, children everywhere, boys and girls alike will be able to complete a full course of primary schooling" (Watkins, et al., 2010).

This indicator is closely related to the government support to facilitate the teacher and education. The scarce data on this issue become a difficulty to assess this indicator.

4. Survival rate to 5th grade of primary school

When a student cannot survive her/his study up to 5th grade and has to be dropped off, then it might indicate that the education and teacher quality is poor, since there is a positive correlation between the survival rate and the teacher and education quality (Task Force Division on Teachers for EFA, 2008).

The qualitative indicators are proposed to identify the national orientation and its potential opportunities for the teacher quality improvement. These qualitative indicators will reflect the government policies, the existing opportunities, ongoing activities and programs, national targets and financing gap (Task Force Division on Teachers for EFA, 2008).

2.1.4. EFA Criteria Interpretation and Coordination Mechanism.

The EFA criteria are interpreted by the Indonesian Government through a joint team between the Coordinating Ministry of Peoples Affair, Ministry of National Education, Ministry of Religion Affairs, Ministry of Youth and Sports Affair and Ministry of Women Empowerment (Suharwoto, 2010). This joint team is coordinated by the National Committee of Indonesia for UNESCO and chaired by the Deputy Minister of Peoples Welfare. The legal basis for EFA coordination is set out in the Coordinating Ministry for Peoples Welfare decree in 2002 (EFA Secretariat, 2007). The EFA Secretariat reside under the Directorate General of Out-of-School Education (Non-Formal and Informal), Ministry of National Education. The joint team arranges the EFA National Plan of Action and set the target and indicators used to guide the EFA implementation in Indonesia. The targets and indicators are adjusted to the country capability.

For the Indonesia case, these indicators are adjusted to the National Law and Regulations, for instance Law no.20/2003 and Law no.14/2005 (EFA Secretariat, 2007).

The coordination mechanism between UNESCO and Indonesian Government is bridged by the National Committee of Indonesia for UNESCO and the Ambassador, as the Permanent Delegate of Indonesia to UNESCO. The Ambassador is the closest point to the UNESCO (Suharwoto, 2010). When the Indonesian Government has an initiative on a program, then the National Committee of Indonesia for UNESCO will prepare the plan and communicate it to the Ambassador. Hereafter the ambassador will submit it to the UNESCO. The mechanism coordination from the UNESCO to the Indonesia government will be done conversely.

2.2. An Introduction to Indonesia and the Education System

This part is dedicated to introduce the Indonesia fact and the Education System. The fact of Indonesia is presented in section 2.2.1 followed by the education system and network specification in section 2.2.2 and 2.2.3. The last section describes the Education Policy and the Legal Environment to support the national education system.

In this research, researcher will specifically study the basic education level for the public and private schools. The basic education level is considered to be an important level to be studied since

the science and knowledge foundation is given in this level. The teacher quality in the religion school is not studied since they do not reside under the Ministry of National Education but reside under the Ministry of Religion Affairs. The Ministry of National Education has no authority to intervene the teacher quality in the religion school.

2.2.1. Indonesia Fact

The Republic of Indonesia is large and diverse country with over than 240 million people and more than 300 ethnically distinct groups in more than 1.9 million km2 area (CIA, 2008). It consists of 30 provinces, 2 special provinces and 1 province of special capital city district. These provinces are situated in islands between the Indian Ocean and the Pacific Ocean. Figure 3 shows the map of Indonesia.

Figure 3. The map of Indonesia (Source: CIA (2008))

Indonesia is a developing country with new reformation in all aspects of life in 1998. After the reformation era, many changes occurred for instance in the governmental structure and education system. The decentralization starts to be implemented on 1 January 2001 and there was a first direct election in 2004 (CIA, 2008). The decentralization causes the local governments become responsible in providing the government services, include the education service. These 440 district government and administrators will be elected publicly.

The education must respond to the diverse community and distributed widespread throughout all the islands. 60% of the total population is concentrated in Java and Bali Island, meanwhile the 40% of the total population is spread to the Indonesian islands. However the Java and Bali Island constitute only 7% of the total area of Indonesia. These facts significantly impact the national education system delivery and its cost (EFA Secretariat, 2007).

2.2.2. The Education System

The Indonesia schooling system consists of early childhood care and education, basic education and secondary education, and higher education. The early childhood care and education is commonly called the playgroup or kindergarten where the children main activity is playing. The basic education consists of 6 years of primary school and 3 years of junior high school. These nine years of basic education is a compulsory education where the government is obliged to provide a decent education. The secondary education consists of 3 years of senior high school or 3 years of vocational school. After this, the students may continue their study in the university.

The Early Childhood Care and Education

The Early Childhood Care and Education is given to educate children from birth to six years of age (Abdulhak, et al., 2009). This program intended to stimulate these children intellectual, personal, and social development in order to have good long lasting effects on their personality (Abdulhak, et al., 2009). This program consists of the playgroup and day care centre for children before four years age and the kindergarten for children between four and seven years before they enter the primary school. The playgroup program is mainly playing in order to stimulate their senses. Meanwhile in the kindergarten, children may start to learn how to read and count.

The Basic (Primary) Education and Secondary Education

As explained before that the basic education consists of nine years education meanwhile the secondary education is 3 years. The basic education consists of two level educations, specifically 6 years of primary education (Sekolah Dasar) and 3 years of junior high school (Sekolah Menengah Pertama). The first level starts at age seven and usually ends at age 12. There will be a national examination in final year and the students with high scores can go to best and most favorite junior high school in their region. The teachers in primary schools are usually a grade teacher who teaches one group of students in the same level. These teachers must oversee the children growth and development, and recognize pupil's competencies so as to support and develop his/her competencies. In this level, the pupils of the first until third grade (7 until 9 years old) will study for 30 learning hours per week. Meanwhile the pupils of the fourth until sixth grade (10 until 12 years old) will study for 34 learning hours per week. One learning hour is 35 minutes.

The Junior High School starts after they graduate from the primary school. In this level, the pupils study for 34 learning hours per week. One learning hour is 40 minutes. There will be a national exam in the final year. The students with high grade can enter best and most favorite senior high school in their region. The junior high school teachers teach different subject based on their academic competencies. However several subjects, which are cognate, might be given by the same teacher. For instance the subject of geography, economic, sociology and history can be clustered as the social sciences. These subjects are given by one teacher so as to provide a comprehensive explanation to the pupils. For example when a teacher is explaining a market, he/she will talk about an economic activity. If we learn more, we can understand the reason of the market location, herewith the pupil study the geographical aspect. When the market is developed because there was a kingdom nearby, then the student will learn about its historical part. Moreover when people start to build their houses near the market, then the sociological part is studied (Subandiyo, 2010).

After they graduate from the junior high school, they enter the senior high school. They will study for 3 years in this level. The Senior High School teachers are similar to Junior High School teachers where they teach different subjects. However in this level, there is less teachers who teach cognate subjects since the subject matter is quite depth and it need deeper knowledge. There will also be a national exam in their final year. After their graduation, they still have to study hard if they want to enter good study program and most favorite universities.

The Higher Education

In this level, there are several types of universities and higher education level institutions, namely Academy, Polytechnic, Higher Education, Institute, Universities and Official Higher Education (Directorate General of Higher Education, 2009). There are also several types of education level, namely Diploma I, Diploma II, Diploma III, Diploma IV, Under-graduate program and Post-graduate program.

Based on its site, the Directorate General of Higher Education (2009) classified the higher education into 6 levels of degree. The lowest level degree is the Diploma I meanwhile the postgraduate program is the highest level degree. The education level degrees are described as follows:

1) Diploma I; is a professional education program with minimum study load of 40 semester credit units and maximum study load of 50 semester credit units. The curriculum is designed to be given in 2 semesters. The program is planned to be finished in 2 until 4 semesters.
2) Diploma II; is a professional education program with minimum study load of 80 semester credit units and maximum study load of 90 semester credit units. The curriculum is designed to be given in 4 semesters. The program is planned to be finished in 4 until 6 semesters.
3) Diploma III; is a professional education program with minimum study load of 110 semester credit units and maximum study load of 120 semester credit units. The curriculum is designed to be given in 6 semesters and planned to be finished in 6 until 10 semesters.
4) Diploma IV; is a professional education program with minimum study load of 144 semester credit units and maximum study load of 160 semester credit units. The curriculum is designed to be given in 8 semesters. The program is planned to be finished in 8 until 14 semesters.
5) Undergraduate program; is an academic education program with minimum study load of 144 semester credit units and maximum study load of 160 semester credit units. The curriculum is designed to be given in 8 semesters. The program is planned to be finished in 8 until 14 semesters.
6) Postgraduate program; is an academic education program given after the undergraduate program. The master and doctoral programs are classified into this cluster.

The Non-Formal Education

Since there is a number of groups which are difficult to reach through formal education, for instance several ethnic minorities, tribal groups, some families in remote areas, and urban street children; the Indonesian Government through the Directorate General of Out-of-School Education (Non-formal and In-formal Education) has carried through a non-formal program. This program includes the home-schooling, mobile schools, and setting up community village life-long learning centre.

This Non-Formal Education or the Equivalency Education aimed to substitute, to compliment, and to add the education given by the formal schools (Abdulhak, et al., 2009). This program can substitute the education and comply the educational activities cannot be gained from the formal schools by means of Package A, Package B and Package C. Meanwhile 'to add' means to add substances has not been covered and given by the formal schools.

The Package A is equivalent to the primary education of 6 year. The Package B is equivalent to the 3 years of junior high school education. And the Package C is given to substitute the 3 years of senior high school education. The other program is Package C on life skills to give adequate life skills needed to carry out his/her livelihood activities.

The Education System in Indonesia is summarized in Figure 4.
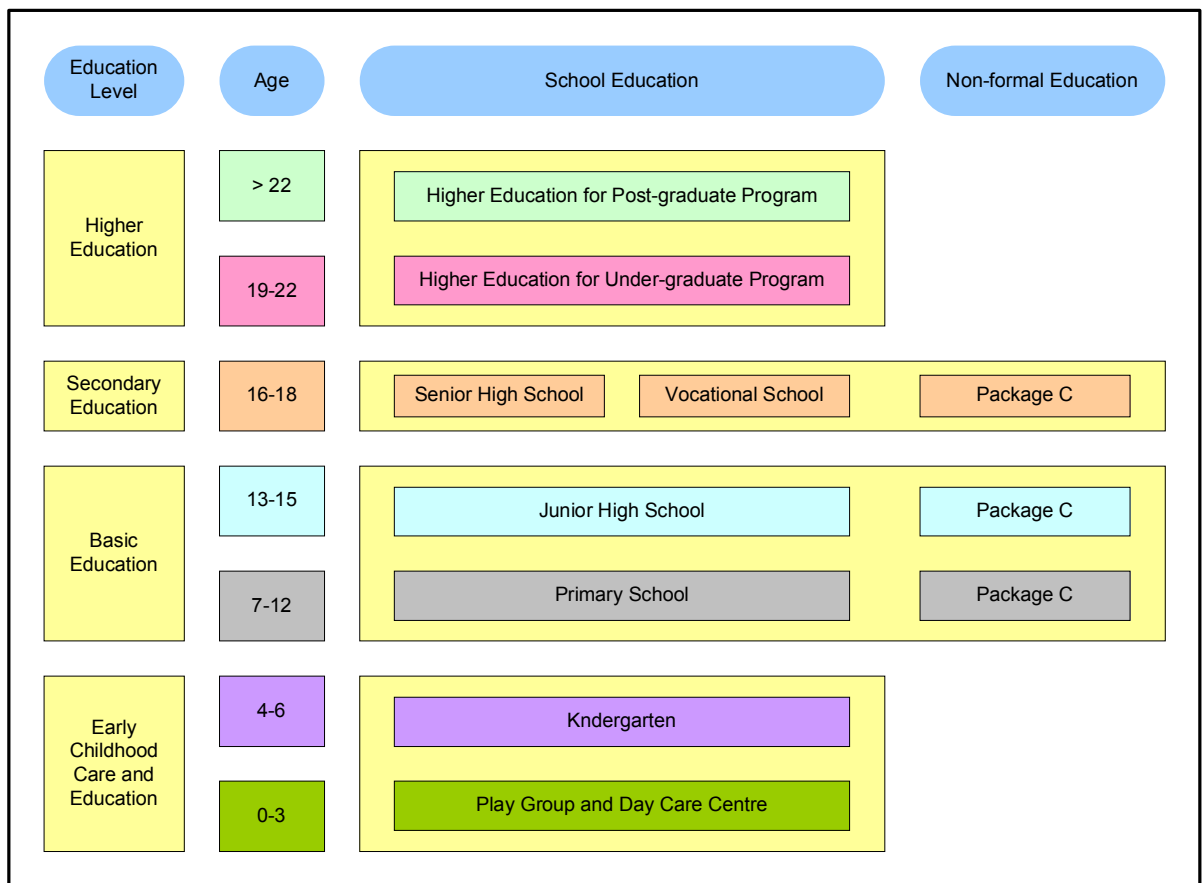
Figure 4. Education System in Indonesia (Source: EFA Secreatariat (2007))

2.2.4. Education Policy

In the last decade, Indonesian Government has reformed its education system and continuously developed a comprehensive legislative and regulatory framework to create a supportive education system environment. A set of rules, responsibilities, obligations and a reform of educational institutions organizational structures is continue to be carried out.

The education reform starts with the 4th Amendment to Article 31 in the education in the Constitution; and followed by the Law no. 17/2003 in the State Finance. In this Law, the education finance is regulated to be financed from many sources: the central government, provincial government and district government, and parental/community contributions (Republic-of-Indonesia, 2003).

In order to implement the comprehensive education reform, a set of regulatory framework is issued. The issuance covers the education reform and the teacher improvement quality law and regulation. The education reform starts to be implemented after the issue of Law no. 20/2003 on the National Education System. Two years later, the Law no.14/2005 is issued to rule teacher quality improvement. Furthermore, the Standard of the National Education is regulated in Government Regulation no. 19/2005 in order to assure the education quality meanwhile the teacher certification is decanted in Government Regulation no. 74/2008 in order to improve the teacher quality. The operational and implementation of the teacher certification is set in the Ministry of National Education Regulation no. 16/2007 (Baedhowi, 2009).

Law no. 20/2003 on the National Education System

This law sets out the legal provision to ensure that the marginalized groups, for instance for those who live in the remote or rural areas, can be reached by the education program. In order to reach the marginalized, the national education system is reformed to be decentralized. The decentralization is implemented in two stages: The responsible and authority to manage the education service is delegated to the local government (province and district government) from the central government; and the school will be able to have an authority to manage its school based on the school-based management (EFA Secretariat, 2007). However the guidelines will still be given by the central government and the school may have limited authority.

After the implementation of the law, the teacher distribution is organized by the district government. When one teacher starts to teach in one district then he/she will only be rotated to different schools within the district. The teacher salary is given balance between the Central and Local Government.

The Law no.14/2005 on Teacher Quality Improvement

This new legislation regulate is the legal basis of the teacher quality improvement programs implemented in Indonesia. This law encompasses the new functional, professional and special incentives for teachers. This new policy aimed to improve the teacher quality so as to improve the education quality.

The Government Regulation no. 19/2005 on Standard of the National Education

This Government Regulation spelled the education reform and quality improvement in more detail based on the Law no. 20/2003 on the National Education System. Eight basic standards were emphasized in this regulation in order to describe the good quality of education, i.e.: content standard, process standard, school competency standard, teacher and teaching staff competency

standard, standard of facilities and infrastructure, management standard and education assessment standard.

The Government Regulation no. 74/2008 on the Teacher Certification

This regulation stated that a teacher certification is a mean to proof the teacher competencies therefore all teacher must be certificated. The detail specification on the teacher certification process is elaborated in this regulation. This regulation also stated that every teacher should teach minimum 24 hours of teaching hour

The Ministry of National Education Regulation no. 16/2007 on the operational and implementation of the Teacher Certification

This regulation emphasizes the need of teacher certification. Furthermore this regulation spell out the certification operational so as the certification can be implemented. This regulation also becomes the legal basis for the certification technical guidelines.

The levels and relationship of the education law and regulation is shown in Figure 5.

The Role of Law or Regulation	The Law or Regulation
The legislative mandate for policies and procedures development	Law number 14/2005 On Teacher Quality Improvement ⟷ Law number 20/2003 On the National Education System
The regulation to describe the implementation arrangements	Government Regulation number 74/2008 On the Teacher Certification ⟷ Government Regulation number 19/2005 On the Standard of National Education
Provide the guideline and framework to the process administration	Ministry of National Education Regulation number 16/2007 On the operational and implementation of the Teacher Certification
The guidelines to give the detailed guidance to implementor	Rules, Procedures and Technical Guidelines

Figure 5. Education Law and Regulation levels and relationship

2.3. The Education Coordination Mechanism and Network

There are several types of school in Indonesia; namely the public school, private school and religion school. The public schools belong to the government where the education fee is subsidized by the government. These public schools usually have a better quality than other type of school. The private schools are private properties where the student has to fully pay the education fee. There are several good quality private schools which has an international standard. The last type is the religion school. This type of school can be Islamic school, Christian school or Catholic school. The Islamic schools are usually belongs to the government and reside under the Ministry of Religion

Affair, although there are also some private Islamic schools. Meanwhile the Christian and Catholic schools usually belong to the private.

The coordinating mechanism in the education system is quite complex. For instance the basic education and secondary education teachers are reside under the Directorate of Basic and Secondary Education however their quality improvement is improved by the QITEP. One example can be taken is that there are some teachers who are reside under the Ministry of Religion Affairs while others reside under the Ministry of National Education. Another example is that the Non-Formal Schools is held by the Directorate General of the Out-of-school Education however the volunteers who teach the non-formal education in the community village life-long learning center are usually volunteers or university students. These students are following a community service program designed by the DGHE. In some universities, this program becomes a one of the graduation requirements.

Although there are many other stakeholders related to the education system, for instance the Ministry of National Education, the Ministry of Religion Affairs, the UNESCO, the Indonesian Teacher Association, the student's parents, Non-Government Organizations in Education Field and many other institutions and organizations; these stakeholders are collaborating together to improve the Indonesian Education Quality.

This research will focus on the network between the Directorate General of Higher Education and the Directorate General of Quality Improvement of Teacher and Education Personnel. These Directorate General are under the coordination of the Ministry of National Education. These Directorates are responsible to assure the teacher quality in Indonesia. Figure 6 shows the Ministry of National Education organizational structural chart.
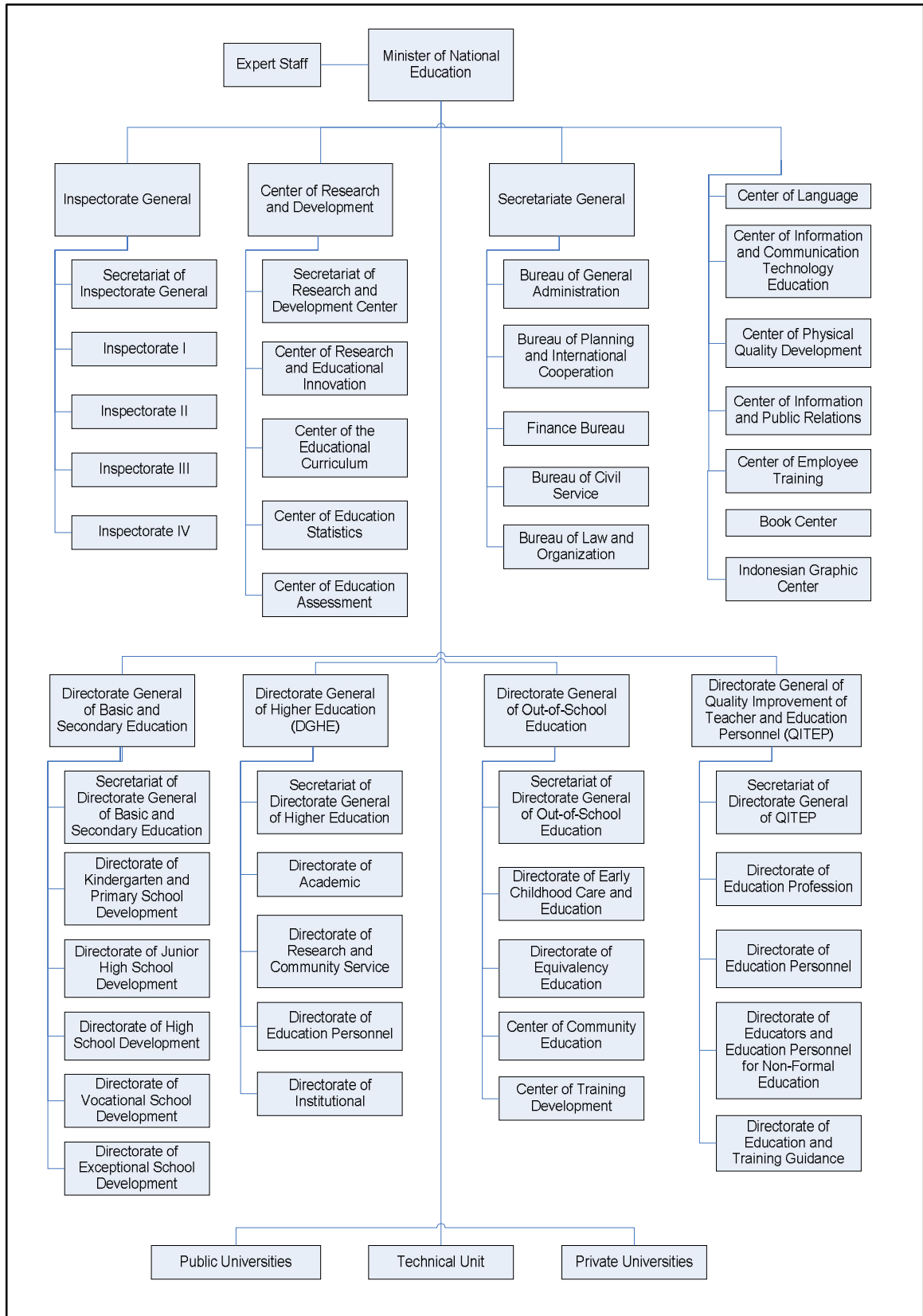
Figure 6. The Organizational Structure Chart of the Ministry of National Education (Source: The Ministry of National Education (2010))

2.3.1. Directorate General of Higher Education

The Directorate General of Higher Education (DGHE) plays a very important role to increase the education quality and teacher quality in Indonesia. The DGHE has liability to develop science through research and innovation, protect intellectual rights and educate higher education learner include educate the prospectus teachers for the basic and secondary education (Directorate General of Higher Education, 2003).

The DGHE cooperate with the Ministry of Religion Affairs in educating the teacher. The Ministry of Religion Affairs has committed to educate the teacher who teach Islamic subject. Meanwhile the rest of the teacher is educated by the DGHE (Jalal, 2010). For instance the teachers of math and nature science subjects are educated by the DGHE although they are teaching in the religion schools, whereas the teachers of Islamic subject are educated by the Ministry of Religion Affairs although they are teaching in the public school. Moreover Jalal (2010) explained that this task division also applied for the teacher quality improvement program and teacher certification. The teachers reside under Ministry of Religion Affairs will be certificated by the Tarbiyah Faculty, Universitas Islam Negeri (UIN). UIN are special universities foe Islamic education in Indonesia.

As mentioned before that the DGHE is responsible to educate the prospective teachers for the basic and secondary education and plays important role to increase the teacher competence and quality. In order to fulfill its liability, the DGHE put high effort in its policies and programs. Based on its target group, the DGHE programs in improving the teacher competence and quality can be classified into two big clusters: The Pre-service Program and In-service Program. The pre-service program is defined as a program to produce intellectual manpower and competent teacher/tutor. This program is given to the prospective teachers before they become teachers, so as they will be able to provide good educational. Meanwhile the in-service program can be defined as a program to maintain and improve the competence and qualification of existing teachers.

Pre-service program

The pre-service program is mainly dedicated to the prospective teacher. In order to actually produce a good quality teacher, the pre-service program given by the DGHE through the Teacher Training Institutions is carried out as very comprehensive program. The program started by the recruitment process, educating, provide test to examine the prospective teacher before they become teachers, and stimulate and develop research and innovation in education field.

The recruitment process is carried out by the Teacher Training Institutions and the Quality Assurance is monitored by the DGHE. The education process is executed by these universities and institutions in order to produce good quality and competent teacher that meet all requirements needed to be a teacher. The requirements are: academic competency, pedagogic competency, personal competency, and social competency (Gultom, 11 April 2010; Republic-of-Indonesia, 2005). These competencies are elaborated in detail in section 3.4.3.

These competencies are given by the Teacher Training Institutions during their studies in the undergraduate program. Therefore a minimum academic requirement of undergraduate (S1 or DIV) is must to be a teacher. The Teacher Training Institutions curriculum is based to the rule and

technical guidance given by the DGHE in order to assure the quality. However there are several national subjects loaded (Gultom, 11 April 2010).

Before graduated, in other words given a permission to teach, these prospective teachers will be examined and evaluated. When they fulfill all the requirements, then he/she will be graduated. The quality of these graduate students is assured by the DGHE through the Teacher Training Institutions.

After the issue of Law no.14/2005, more universities have the undergraduate program for Early Childhood Care and Education Teacher. In 2008, there are 13 universities have this program as their new program (Abdulhak, et al., 2009). This condition eases prospective teachers to pursue higher degree and finally helped the government to improve the new teacher quality.

In-service program

The objective of In-service program is to maintain and improve the teacher quality. This program is mainly dedicated to the existing teacher. This program is given by the DGHE through the Training Teacher Institutions. This program is carried out to be a comprehensive program, starts with the teacher mapping process, giving training, and ends with the evaluating teacher through certification and other evaluation.

Gultom (11 April 2010) explained that the mapping process aimed to discover the teacher quality and competence in different region in order to map what training is needed in the region. One region might need a pedagogical training meanwhile other region might need the training on new teaching methods. Even it might be not all teachers in the region need the training. If so, the teacher who needs the training will be listed and henceforth the training will be given to them. After the training is given, the teacher training institute has to monitor the teacher progress include monitor whether the new materials can be implemented by the teachers or not. This comprehensive program is performed by the Teacher Training Institute together with the Local Government in the District level. The certification by the means of portfolio also resides under these institutions. The portfolio is assessed by the assessor from the universities.

The most needed training is the Teacher Education and Professional Training (TEPT). TEPT aimed to improve the teacher competence and professionalism so as the teachers can achieve the minimum passing score in order to be certified (Samani, Dasuki, et al., 2010b). The appointed Teacher Training Institutions carry out the TEPT for 90 meeting hours with the minimum teacher stay duration of 9 days. The meeting is divided into 30 meeting hours of theories and 60 meeting hours of practice. 1 meeting hour is equal to 50 minutes (Samani, Dasuki, et al., 2010b). The training is held in the universities or in the district hall. It might be held in one of the school area in the district, as long as the environment is feasible for the training.

A module and many different methods and media are used in the training so as to acquaint the participants to diverse media and tools (Susilowati, 2010). The training begins with the pretest and ends with the post test. The post test consists of two parts: the written test and the practice test. The written test is used to evaluate the professional and pedagogic competencies. Meanwhile the practice test is designed to evaluate the professional, pedagogic, personal and social competencies

(Jalal, et al., 2009). The practice test is implemented in the small working group consists of 10 persons and do the peer teaching. When the participant passes the tests, then he/she will be certificated. If they cannot pass the tests, then he/she will have a second opportunity to do the test.

Besides the training to maintain the teacher quality, these institutions also give undergraduate program to the existing teacher in order to improve their competencies. This policy and program has resulted in increasing the competent and qualified teacher. The DGHE plays important role in upgrading the teacher academic qualification, for example from the D2 degree level to the undergraduate degree level. The pre-service and in-service programs are delivered by the DGHE. In order to increase the number of qualified teacher, the DGHE bring many supporting: Distance Learning and Dormitory-housed Teacher Education.

The Distance Learning Program is an education program for teacher by the use of ICT as its instructional instruments. This program is intended for teachers who live in the remote areas and away from the universities providing the undergraduate program for teachers (Gultom, 11 April 2010). Teachers who live away from these universities cannot attend the ordinary classes given in the universities since they cannot quit their daily teaching activities. They will attend a tutorial and consultation session once a week in an easily accessible place. They are required to do an independent study and read the modules by themselves then identify the solutions in the consultation session.

The other program is the Dormitory-housed Teacher Education. Basically, this program is a scholarship program for teachers who has not hold the undergraduate degree yet (Abdulhak, et al., 2009). This dormitory was intended for the teachers from the remote areas so as they will not find any difficulties to find accommodation in the cities. In addition by gather them in the dormitory, the teachers are expected to be highly intense in joining the activities in improving their competences and academic qualification (Abdulhak, et al., 2009).

2.3.2 Directorate General of Quality Improvement of Teacher and Educational Personnel.

The Directorate General of Quality Improvement of Teacher and Educational Personnel (QITEP) is one of the Directorate Generals under the Ministry of National Education which has main responsibility to improve the teacher and educational staff in the early childhood care and education, basic education, secondary education, and non-formal education (Directorate General of Quality Improvement of Teacher and Education Personnel, 2010). The QITEP has a secretary and 4 directorates to carry out its duties: Directorate of Education Profession, Directorate of Education Personnel, Directorate of Educators and Education Personnel for Non-formal Education, and Directorate of Education and Training Guidance. One of the QITEP program is the teacher certification program. In order to undertake the program, the QITEP has 2 independent institutions: Institute for Educational Quality Assurance (IQEA) and Centre for Development and Empowerment of Teachers and Education Personnel (CDETE). Nowadays there are 30 IQEA and 12 CDETE throughout Indonesia.

The secretary has main function to coordinate the directorates so as to perform their function effectively. The Directorate of Education Profession main task is to prepare the policy formulation, technical guidance and evaluation on teacher and educators profession development based on the Law no.14/2005 on Teachers and Lectures (Directorate of Education Profession, 2008). One of the programs is to manage all of the teachers in Indonesia in order to meet the requirement so as to be certificated. Furthermore the Directorate of Education Personnel has main tasks to project the number of teacher posts needed, facilitate the government and schools to implement the teacher profession development and to give training t develop the education personnel quality (Directorate of Education Personnel, 2008). Meanwhile the Directorate of Educators and Education Personnel for Non-formal Education responsibility is to collect and manage the data and information, prepare the program implementation and evaluate the Directorate program implementation. This directorate also has to prepare the policy formulation, provide the technical guidance and evaluate the Non-formal education teacher and education personnel competencies (Directorate of Educators and Education Personnel for Non-formal Education, 2006). The last Directorate is the Directorate of Education and Training Guidance. This Directorate has main task to give training to develop the education personnel quality in coordination with DGHE.

Lembaga Penjamin Mutu Pendidikan or Institute for Educational Quality Assurance (IQEA) is a decentralized institution, but centrally managed by QITEP, to assure the schools and programs quality. The main program is to visit schools to undertake quality assurance review (Jalal, et al., 2009). IQEA also has responsibility to administering the fund from the central government to support the teacher training activities and assist its activities.

Meanwhile Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan or Centre for Development and Empowerment of Teachers and Education Personnel (CDETE) has main task to give training for new trainers in the provincial or district level. These trainers will train other teachers in their region. CDETE is also a decentralized institution, but centrally managed by QITEP.

2.3.3 The New Ministry of National Education Organizational Structure.

The current Ministry of National Education organizational structure will shortly experience a bureaucracy reform. The reformation aimed to improve the Ministry performance by integrating the physical and non-physical management into a single management (Alkaff, 2010). For example, nowadays, the Directorate General of Basic and Secondary Education only deals with the Primary Schools, Junior High Schools, and Senior High Schools buildings and its facilities management; whilst the teacher education and management is managed by the Directorate General of Quality Improvement of Teacher and Education Personnel (QITEP). The reformation mainly diverts the QITEP responsibility into other Directorate General's responsibility and to separate the Directorate General of Basic and Secondary Education into two Directorate Generals.

The organizational re-structuring overview can be seen in Figure 7.
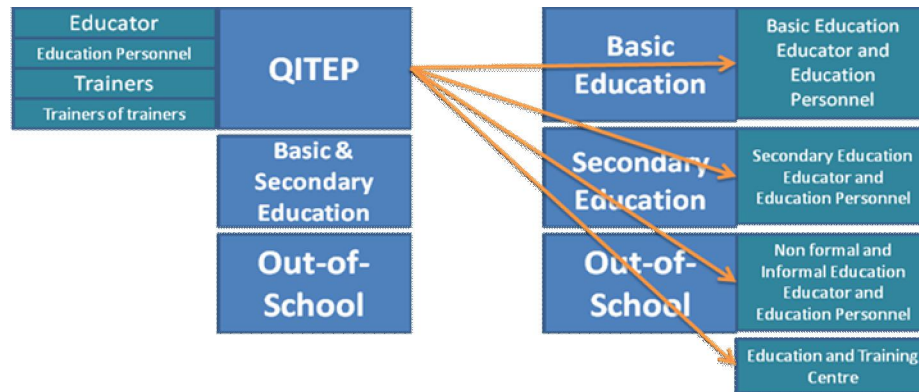
Figure 7. The Organizational Re-structure of the Ministry of National Education (Source: Alkaff (2010))

As seen in Figure 7, currently QITEP is responsible to manage the teacher and educational personnel, include the educator, education personnel, trainers, and trainers of trainer. This responsibility will be diverted to the several Directorate Generals, for instance the basic education teachers and educational personnel management will be divert from the QITEP to the Directorate General of Basic Education. The same stories apply to the secondary education and out-of-schools teacher and educational personnel management. As a consequence, the QITEP will be eliminated.

Another restructuring applies to the Directorate General of Basic and Secondary Education. This Directorate General will be divided into Directorate Generals: Directorate General of Basic Education and Directorate General of Secondary Education.

The diverted responsibilities will encompass the certification process, teacher distribution management, teacher and educational personnel education and training. In conclusion, the management will be separated from one management into three managements. By having this separation, the three Directorate General (Directorate General of Basic Education, Directorate General of Secondary Education, and Directorate General of Out-of-School) can compete in accordance its performance. So the implementation will be more transparent (Alkaff, 2010).

In this research, the new organizational structure will be used in the policy analysis proposed to solve the problem. Four Directorate Generals are closely related to the analysis: the Directorate General of Basic Education, the Directorate General of Higher Education, the Book Center, and the Center of Educational Curriculum. The other important agency which is closely related to the analysis is the National Education Standard Agency. The National Education Standard Agency or Badan Standar Nasional Pendidikan (BSNP) does not reside under the Ministry of National Education. It supported and coordinated with the Ministry of National Education and develops education standards regarding all national education unit (indonesia, 2010). One of the BSNP responsibilities is to develop the education curriculum standard, include the education unit level curriculum (EULC). The further information about the EULC can be read in section 2.5.1.

2.4. The Local Government Autonomy and Education Decentralization

Indonesia education system becomes more and more decentralized (Bjork, 2006). Indonesia realized the responsibility division importance to guarantee that local resources and income can be

used by its local government and communities (Schaik, 2009). Many less developed region pay high tax but they do not get high consideration from the government in the education development. Schaik (2009) gives example of Papua Island and Java Island case. Papua Island has many natural resources and low population meanwhile Java Island is poor but it has dense population with high number of student. He explains that the money generate from the natural resources in Papua Island is used more to develop Java Island. It is presumed that the more education decentralization in Indonesia is good for the education system and development (Bjork, 2006). Delegating the authority from the central government to the local governments will increase the community empowerment and participation in the education process.

The decentralization, include the education decentralization, starts with the implementation of Law no.22/1999. The decentralization is formed in provincial and district level (Aritenang, 2008). The district level is under the province level. The Law no.32/2004 on Local Governance distributes the authority into three governments, specifically: (1) **Central Government Authority**; responsible for the implementation of defense, foreign politics, justice, and fiscal/monetary policies. (2) **Province Government Authority**; deals with the cross district and city affairs for example the works of transportation and other public works, forestry, plantation, etc. (3) **District Government Authority**. Since the decentralization focused on the decentralization of governance from the central government to the district government, the district government is responsible to almost all of the public service: public works, health, education, agriculture, communications, commerce and industry, investment, environment and land (Alisjahbana, 2000).

The education decentralization encompasses the authority decentralization in education policy and granting larger authority to the school level (Alisjahbana, 2000). The education policy authority decentralization is focusing on the decentralization of governance from the central government to the district government. This decentralization is designed to ensure that the education development match the local community need and ensure the local tax is used to develop the local education. Meanwhile the larger school authority is designed to improve the education quality and ensure that the education administration and implementation match the schools and student needs (Alisjahbana, 2000). The courses will be implemented by schools through their school authority to design the curriculum of Education Unit Level Curriculum (EULC) (Harianti, 2010). The further description about the EULC will be described in section 2.5.

The local government refers to the district government and province government. In this research, the district government is separated from the province government in order to distinguish their levels, authorities and responsibilities.

2.5. Education Unit Level Curriculum and Current Teacher Task

Starting in 2006, Indonesia set a new curriculum, known as the education unit level curriculum (EULC) or Kurikulum Tingkat Satuan Pendidikan (KTSP). This curriculum is designed to assure that the new education curriculum suits the school and students needs. This new curriculum implementation leads to new teacher tasks and responsibilities. Section 2.5.1 elaborates the education unit level curriculum meanwhile section 2.5.2 discusses the current teacher tasks and responsibilities after the education unit level curriculum implementation.

2.5.1. Education Unit Level Curriculum

Decentralization will not be successful without innovative curriculum material which matched the local needs (Zajda, 2006). With this reason, schools in Indonesia have larger authority to design their education administration and implementation to comply the student needs. One of the authorities is to develop its own curriculum based on the national standards. The central government through the Education National Standard Agency set the national standards and the standardized assessment. These standards are formulated based on the state's goals of economic growth, nation-development and nation-building (Zajda, 2006). Then teachers are responsible to structure the original curriculum into the new EULC and learning activities based on the school policy.

The EULC development can be done by (1) Time allocation modification, (2) Content modification, (3) teaching-learning process modification, (4) Facilities modification, (5) Learning environment modification, (6) Management of teaching program in every semester, (7) manage the curricular and extracurricular programs, (8) manage the assessment method and implementation (Tariyani, 2009). An example is given by Bjork (2006) where schools in Bali may decide to offer special courses in tourism meanwhile agriculture courses can be given more in Java. These decisions are decided by the local government authority in decentralization enactment.

Another example is given by (Kumalawati, 2010) where SMA N 1 Tarakan add more time to History subject meanwhile reducing the time for English subject. Previously, the history subject was only given in one teaching hour per week. Since the Tarakan City history is complex and considered important to be given, not only the national history, school need to add more teaching hour. In result, the history subject is given in two teaching hours per week.

2.5.2. Current Teacher Tasks and Responsibilities

Following the EULC implementation, teacher in Indonesia has more tasks and responsibilities than before. Harianti (2010) explained that since EULC intent to give opportunity to schools to develop programs and curriculum, the central government only set the national standards and the standardized assessment based on the state's goals of economic growth, nation-development and nation-building. This standard is the minimum qualification which every student must possess.

Based on these standards, the structure of curriculum is developed by the Center of the Education Curriculum. Later, based on this structure of curriculum, schools set their goal based on their competencies and conditions. Then teachers design the EULC to be implemented in their school based on the school goal. When there is a school which project their goal to be higher than the national standard, then teacher must set their own curriculum. Based on this curriculum, teacher design the syllabus which contains the learning activities plan for one sub topic of the subject, its evaluation indicator, and the instrument will be used in the teaching activity. Then teacher need to design the daily learning implementation plan which encompass the teaching method and the teaching activities step. The teaching method consist of what teaching methods and tools will be used in the class activities; whilst the teaching activities step consist of the details which will be explained in the class, for instance the introduction sentences, the materials will be given in class, the closing sentences, and the questions will be given in class and its answers.

Furthermore, Harianti (2010) explained that the central government does not design the evaluation methods and questions, because the evaluation should in line with the EULC and education materials given by the teacher. In addition, the evaluation should be adjusted to the local condition, for instance the evaluation questions for Geography subject will be different from one region to another region. The central government only designs the national evaluation method and question which will be given to the last year students to examine the students' competencies before they graduate.

Although there is several books contains the education materials and evaluation methods and questions, but the teacher still has to adjust it with the materials given in class, since the teaching activities does not follow the book but the EULC. The books are only used to support the EULC. These education materials and evaluation questions were not put into a book form because one material or method may not necessarily be used in other areas (Harianti, 2010).

2.6. Current Status of Teacher Quality in Indonesia and the Quality Improvement Policy

The Indonesia teacher quality fact on their academic qualification is presented in this section. In the following, the teacher Certification program as a strategy to improve the teacher quality will be thoroughly described. In the last section, the post-teacher certification problem will be captured. In 2008, the central government recognizes this problem after the teacher certification entered the second year. Nowadays the central government warns the local governments through the education service agencies in the district level to solve this problem in two years. However the local governments do not have a reliable solution yet to solve this problem.

2.6.1. The Overview of Indonesia Teacher Quality Fact

Based on the QITEP data, there were 2607,311 teachers in Indonesia in 2009 (Baedhowi, 2009). This number consist of Kindergarten, Primary school, Junior High School and Senior High School teacher throughout Indonesia, both private and public schools. Baedhowi (2009) stated further that only approximately 40% of this total number has completed their undergraduate program (S1) or Diploma IV (D4). The rest do not has undergraduate background. This data is processed by the Directorate General of Quality Improvement of Teachers and Education Personnel and verified by the Education Service Agency in the District.

The detailed information of the primary school and junior high school teacher and their academic qualification can be seen in Table 1.

Table 1. Primary School and Junior High School Teacher Academic Qualification

No	Education Level	High School	Diploma 1	Diploma 2	Diploma 3	Diploma 4 and Undergraduate	Postgraduate	Total
1.	Primary School	372,952	12,881	709,023	30,948	354,401	2,853	1,483,059
2.	Junior High School	29,083	22,112	20,988	58,790	365,874	6,068	502,915
	Total	402,035	34,993	730,011	89,738	720,275	8,921	1,985,974

(Source: Baedhowi (2009))

From Table 1 above we can see that 1,125,804 (75.9%) primary school teachers do not have undergraduate background. There are fewer teachers in the junior high school that has not possessed the undergraduate degree. There are only 130,973 (26.04%) junior high school teachers who have not met the requirement. This condition gives a big task for the government to improve the teacher quality, especially for the primary schools teachers, since the primary education is the early basic education (Jalal, 2010).

2.6.2. Teacher Certification to improve the teacher quality

Teacher Certification is a mean to improve the teacher quality and therefore increase the education quality in Indonesia. This certification is carried through based on several legal basses: Law no.20/2003 on the National Education System; Law no.14/2005 on Teacher and Lecturers; Government Regulation no.19/2006 on National Education Standard; Government Regulation no.74/2008 on Teacher; Ministry of National Education Regulation no.16/2005 on Educator Qualification and Competences Standard, and Ministry of National Education Regulation no.10/2009 on Teacher Certification. The detailed explanation about the regulations is presented in section 2.2.4

The certification starts to be implemented in 2007. Up to 2009 there are 600,450 teachers joining this certification. The certification process starts will the process of setting the quotas, determining participants, preparation of portfolio documents and portfolio assessment. These processes will be elaborated further in section 2.4.3.

Based on the Government Regulation no.74/2009 on Teacher, specified in clause 65 act b and Ministry of National Education Regulation no.10/2009 on Teacher Certification, the teacher certification can be done in two schemes. The first scheme is the competency test through portfolio assessment. The second scheme is by directly giving the educator certification. The detail teacher certification process and its coordination mechanism can be seen in Appendix H.

2.6.3. The Anticipation of Problems Post-Teacher Certification

Certificated teacher will acquire a professional allowance as much as one time salary if they already fulfill their minimum teaching hour obligation. This minimum teaching hour is regulated by the Government Regulation no.74/2008 on Teacher and School Supervisor Workload. In its clause 52 act 2, the regulation stated that the minimum teacher workload is 24 hours teaching time per week and the maximum workload is 40 hours teaching time per week.

There is a problem where these teachers cannot fulfill their obligation to teach minimum 24 hours of teaching time per week. The causing factors are classified into four categories (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2008):
1) The number of pupils (students) is too small.
   When the number of pupils in the school is too small, then the number of teaching hour for a certain subject might not be achieved. Therefore a sufficient number of pupils in the school are needed in order to reach the 24 hours of teaching time per week.
2) The number of learning hours in the curriculum is too low

There are some subjects with only 2 hours per week, for instance the foreign language subject, history etc. In result, the teacher for those subjects will not be able to reach the 24 hours of teaching time requirement.

3) The number of teachers in a school for certain subject is too much

This problem occurred after the changes of regulation on the teaching time from 18 hours to 24 hours of teaching time per week.

4) There is a special condition for a school in remote areas and some special schools.

The number of pupils in the schools in remote areas is usually too small. This condition is affected by the number of population in that area. Meanwhile for other special schools, for example the exceptional schools or expertise puppetry school, the number of pupils is also very small. However these schools are indispensable.

Since there are many teachers who cannot fulfill their obligation to teach minimum 24 hours of teaching time per week, they may try to fulfill the minimum requirement by several procedures. The Directorate General of Quality Improvement of Teacher and Educational Personnel stated that there are seven alternatives procedures to fulfill their obligation, as to be mentioned (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2008):

1) By giving lesson on the most related subject to their core subject in one subject cluster or by giving lesson on other subject where no teacher is teaching the subject. These procedures could be carried through in the same or different school,

2) By giving tutorials in Non-Formal Education programs, i.e.: package A, package B, package C, vocational-package C or literacy programs. Other choice is by being a tutor for teachers in Non-Formal Education programs,

3) By giving tutor or instructor in Teacher Working Group (Kelompok Kerja Guru/KKG) or Secondary Subject Teacher Forum (Musyawarah Guru Mata Pelajaran/MGMP),

4) By helping to develop extra-curricular programs, videlicet: Scouting, Student Olympics, Art and Culture, Sports, Scientific Writing Group, Journalistic, Photography etc,

5) By helping students to develop their talent based on their interest, capability and attitude,

6) By performing team teaching, and

7) By performing remedial teaching.

Chapter 3. Analysis of the Teachers Quality in Indonesia

A thorough understanding of the existing condition of teacher quality in Indonesia and the scope of the problem will be elaborated in this chapter. This chapter is divided into two parts. The first part (section 3.1 and 3.2) is dedicated to analyze the Indonesia condition based on the UNESCO criteria and the Indonesia Government criteria. The second part (section 3.3) deals with the causal relation diagram to analyze the underlying cause the lack of the teacher quality in Indonesia.

3.1. Assessing of Teacher Quality in Indonesia based on the UNESCO criteria

As described in section 2, the Task Force on Teacher for EFA (TFTE) resides under the UNESCO develops a tool to capture the world's teacher quality and gap. This tool consists of 3 quantitative indicators and 3 qualitative indicators. Countries are categorized into three country level scenarios: minor, moderate, and severe gap. Based on the UNESCO Institute for Statistics report (Otchet & Frostell, 2009), there are 13 countries facing minor gap, 46 countries with moderate gap, meanwhile another 37 countries facing severe gap. Indonesia is grouped into the countries with moderate gap (Suharwoto, 2010). Indonesia is projected able to manage to expand their teaching forces if the political will and government support continue.

Projections of increase in teacher stocks needed to achieve UPE by 2015

Based on the first indicator, Indonesia fulfills its three sub-indicators. The Indonesia is projected able to meet the increase of teacher stocks needed to achieve UPE[2] by 2015. The number of teacher needed is mainly considering the population growth and the number of teachers leaving the profession. The number of teachers leaving the profession consists of the number of teachers retire, change professions, or leave to assume administrative duties.

Based on the UNESCO report (Otchet & Frostell, 2009), several assumptions made to calculate the projection. First, the universal primary enrollment is assumed to be 100% with the number of pupils as the number of school age children. The second assumption is the repetition rate. The repetition rate used measure how many students repeat the class and should study over again the previous year. This rate is considered to be halved reduced from the existing rate. The repetition rate in 2009 is 3%, therefore it is estimated that the repetition rate will be reduced into 1.5% during the last six years, to meet the UPE in 2015. The third assumption is the pupil to teacher ratio, where the ratio used in the calculation is 40:1.

As stated before, Indonesia is considered able to fulfill the teacher needed by 2015. This conclusion is made after the Indonesia currently fulfill the sub-indicators: number of teacher needed, the projected absolute increase in the number of teacher posts needed, and the projected total number of teachers needed (in thousands) for 6.5% attrition level scenario. The attrition level used to project how many teachers will leave the profession in the following years. Table 2 shows the

---

[2] UPE or The Universal Primary Education mentioned above is the second United Nations Millennium Development Goals, more specifically it is stated to "ensure that by 2015, children everywhere, boys and girls alike will be able to complete a full course of primary schooling" (Watkins, et al., 2010).

assumptions and the projected number of teacher stocks needed by Indonesia to meet UPE by 2015.

Table 2. The Projections of increase in teacher stocks needed to achieve UPE

School age population by 2007	Pupil teacher ratio by 2007	Repetition rate in 2007 (%)	Teacher number in 2009	Teachers needed by 2015	Teachers to fill vacancies based on a 6.5% attrition	Total recruitment needed
25,412,000	19:1	3	2,607,311	2,728,916	586,546	1,798,289

(Source: UNESCO Institute for Statistics Report (Otchet & Frostell, 2009))

As there is many country members with their characteristics, UNESCO considered three attrition rate estimations: 3.5%, 5% and 6.5% as the low scenario, medium scenario and high scenario. The attrition rate used to project the Indonesia condition is 6.5%. This rate is used since there are high proportion of older teachers (Otchet & Frostell, 2009).

The projection is calculated by estimating the number of children enrolled based on the assumption of number of pupil enrolled, repetition rate, and the population growth. Afterwards, the number of teachers needed is calculated by dividing the estimated number of children enrolled with the pupil teacher ratio (Otchet & Frostell, 2009).

Equation 1. Number of teacher needed

$$Number\ of\ teacher\ needed = \frac{Estimated\ Number\ of\ Student\ Enrolled}{Pupil\ Teacher\ Ratio}$$

Equation 2. Estimated Number of Student Enrolled in 2015

$$Estimated\ Number\ of\ Student\ Enrolled\ in\ 2015$$
$$= Number\ of\ school\ age\ children\ in\ 2007 + 1 \times (population\ growth\ rate + repetition\ rate)$$

It is important to note that good planning needs to be arranged to maintain the teacher stocks. Firstly, a good plan on the training and recruiting plan should be carefully arranged. Secondly, the financial implication must be considered in order to ensure the budgetary resources. Without a good planning from the Indonesia government, this projection will not be achieved and the current success will not be maintained.

Gender Balance in Teaching Profession

The second quantitative indicator of gender balance in the teaching profession covers the percentage of female teachers. The gender balance will influence the education demand from the girls and young women (Task Force Division on Teachers for EFA, 2008). Based on the EFA-Global Monitoring Report in 2009 (Global Monitoring Report team, 2009), the gender specific EFA-index (GEI) in Indonesia is 0.963. It expresses the ratio of male to female enrolment. It can be said that there is no big gender disparities in Indonesia education.

Although the GEI refers to the whole gender-related EFA goal instead of referring to the specific gender balance in teaching profession, but this index might be able to capture the gender disparities phenomenon in Indonesia. This consideration is taken since there is no calculation yet to identify the specific gender balance in teaching profession.

Internal efficiency in primary education

This quantitative indicator is trying to picture the quality of teaching profession by looking at four indicators.

1. Pupil to teacher ratios of 40:1

   Based on the UNESCO Institute of Statistics report, the pupil teacher ratio in the country level is 19:1. This number considered to be said that Indonesia has met EFA criteria on this indicator.

2. Percentage of primary/secondary trained teachers.

   There is no report found related to this indicator since the trained teacher definition has not yet been set up by the Task Force on Teacher for EFA.

3. Teacher motivation, management and support

   Indonesian government has proven their high concern and support to facilitate the teacher and education. Therefore Indonesia became one of the best practices for teacher quality improvement study cases and there are several Indonesian experts contribution is asked in this task force (Kunaefi, 2010).

4. Survival rate to 5th grade of primary school

   The education tend to be qualified when their pupils able to reach the 5th grade of primary school. Based on the EFA Global Monitoring Report 2009, it is stated that the survival rate in Indonesia is 0.844 (Global Monitoring Report team, 2009). This means that 84.4% of the total number of primary school pupil able to survive up to the 5th grade.

The Gender specific EFA index and the Survival Rate can be seen in Table 3.

Table 3. EFA Development Index

Gender-specific EFA index (GEI)	Survival Rate to Grade 5
0.963	0.844

(Source: Global Monitoring Report team (2009))

The qualitative indicators capture 3 issues: 1) National Education Strategies and National EFA plans; 2) Financing; 3) National teacher-related programs. These indicators are proposed to identify the national orientation and its potential opportunities for the teacher quality improvement by identifying the government political will, the ongoing activities and programs, and national targets and financing gap (Task Force Division on Teachers for EFA, 2008).

National Education Strategies and National EFA plans

The Education reform in 2003 brings a new and supporting legal environment to recondition the education system so as to improve the quality. A number of education quality improvement strategies are adopted by the Indonesia Government. School accreditation, teacher certification and curriculum setting are means to assure the education quality. Education infrastructure and facilities improvement is one of the means to support the education activities. Moreover the Coordinating Ministry of Peoples Welfare in 2002 mandates an effective coordination between Government Ministries, civil society organizations and other stakeholders to meet in EFA goals. This mandate proves the Indonesian Government high concern to the national plan to achieve EFA goals, include improve the teacher quality (Suharwoto, 2010).

Financing

Both domestic and external funding is considered in this indicator. This financial measurement consists of number of donors in the country, total aid to education and basic education, and primary teacher's compensation as % of public current expenditure on primary education (Task Force Division on Teachers for EFA, 2008). In the case of Indonesia, Task Force on Teacher for EFA (TEFT) has no in-depth research yet on this indicator.

National teacher-related program

Indonesia has a comprehensive program to improve the teacher quality, starting from reforming the higher education as an institution to educate teacher and improve their knowledge, a certification program for teacher and continuous professional development for teacher. From this comprehensive program, it can be seen that Indonesian government has put teacher quality highly in their agenda.

According to the results of the quantitative and qualitative indicators measurement, Indonesia categorized as a country with the moderate level of achievement. Although Indonesia has already has a comprehensive national plan on EFA and national teacher-related program, Indonesia still has to increase the survival rate, lower the repetition rate, and trained and recruited many teachers.

3.2. The overview of the Current Teacher Condition in Indonesia

This section view the current teacher condition in Indonesia based on the indicators set by the Indonesian Government. The gender balance in teaching profession and the national strategic framework are indicators interpreted by the Indonesian Government based on the Task Force on Teachers for EFA guideline. The current number of teacher, teacher holding an academic degree and certification are indicators set by the Indonesia Government. Later this overview will be used to compare the result of UNESCO assessment.

The indicators of the number of teacher holding an academic degree and the number of certified teacher may not give the real reflection of the teacher quality. Actors may behave strategically by manipulating the scores to ease the teacher education process and certification process. The indicators may also emerge another doubts and questions. When we do the statistical analysis, there might not be a significant correlation between the variables of the number of certified teacher and the teacher quality. However the teacher quality needs to be measured in some way.

Gultom (2010) propose a national examination for teachers to evaluate the teachers knowledge and capability. Through this national examination, the teacher quality can be measured quantitatively. This measurement is a challenge for Indonesian Government since the national examination will need a lot of money because nowadays there are 2.7 million teachers in Indonesia.

In conclusion, since there is no quantitative measurement yet, the researcher used the percentage of teacher holding an academic degree and the number of certified teacher as a tool to measure the teacher quality. This consideration is based on the Government Regulation no.19/2005 on

Standard of the National Education[3] and confirmed by Luschei and Carnoy (2010) who stated that teachers' postgraduate education and experience are strongly related to student outcomes.

Current number of teacher in Indonesia

There are almost 2,7 million teachers in the system with the student-teacher ratio 19.5 and 13.9 for primary school and junior high school level (Jalal, et al., 2009). It shows oversupply of teacher number in the national level. But we can still find some shortage number of teachers in many areas (Ngatijan, 2010; Subandiyo, 2010). Meanwhile many teachers are lacking of teaching time. Table 4 shows the Primary School and Junior High School Teacher Teaching Hours and the percentage of teacher who teach less than 18 hours per week. Although the new regulation of Government Regulation no.74/2008 on Teacher and School Supervisor Workload, stated that the minimum teacher workload is 24 hours teaching time per week, but the data which researcher can obtained is the data related to teaching hours of 18 hours.

Table 4. Teacher Teaching Hours (Source: Jalal, et al. (2009))

		Average Hours	Percentage Teacher with teaching hours less than 18 hours per week	Percentage Teacher with teaching hours equal or greater than 18 hours per week
Primary School Teacher	Cities	24.9	18	82
	Rural Areas	26.45	20.5	79.5
Junior High School Teacher	Cities	18.0	37	63
	Rural Areas	16.15	56	44

As shown in table 3 that there is 18% of primary school teacher in cities teaching less than 18 hours per week, meanwhile there is 20.5% of primary school teacher in rural areas teaching less than 18 hours per week. This numbers shows that there are some teachers who work less than others.

When we look at the junior high school teacher row, we can see that there is 37% of teacher in cities teaching less than 18 hours per week. Whereas 56% of teacher in rural areas teaching less than 18 hours per week.

Since there is an obligation for teacher to teach minimum 24 hours of teaching time per week, the percentage of teacher with teaching hours less than 24 hours per week is estimated to be larger than the number presented in Table 4. In conclusion there is an oversupply of teacher number in Indonesia, however there is some problem occur which tend to the fact of undersupply of teacher. The underlying cause of this problem will be analyzed in section 3.3.2 using the causal relation diagram and based on the interviews.

---

[3] The Government Regulation no.19/2005 stated that a qualified teachers are teachers who has the minimum academic qualification of bachelors degree or DIV, competencies, educator certificates, and be physically and spiritually healthy (Republic-of-Indonesia, 2005).

Current gender balance in teaching profession

In general, this factor does not bring high impact to the education demand in Indonesia. This indicator only brings influence to some rural areas. Since there are some impacts in some rural areas, the Indonesia who put high concern in balancing the gender balances in teaching profession. As a result, the gender balance is achieved in the public schools, especially in the Early Childhood Care and Education and Basic Education level. Less female teachers are teaching in the Secondary Education level (EFA Secretariat, 2007). Nowadays, more female lecturers in higher education level are enrolled.

However there are still some gender disparities in the teacher qualification between female and male teachers. In fact there are more male teachers who hold the undergraduate degree. More female teacher holds Diploma I, Diploma II, or Diploma III (EFA Secretariat, 2007). Nevertheless, there is no further information about the detailed proportion of female and male teacher education level.

Current national policy and strategic framework to improve teacher quality

This indicator will assess the national education strategies to improve the teacher quality, national EFA plan to meet the EFA goals, and the financing aspects to succeed the policy.

Indonesia has dedicated many resources in order to meet the EFA goals, especially the in the objective to improve the teacher quality as part of the effort to increase the education quality as a whole. In 2005, the National Education Strategic Plan was set out in line with the EFA goals, so as the EFA goals become a guideline in the Indonesia education quality improvement. Especially for the teacher quality improvement program, the Indonesian Government has put highly in the agenda with a result of increasing teacher qualification in the last few years.

The percentage of primary school that teacher holds an academic qualification has increased from 10% in 2000 to 14% in 2006 (EFA Secretariat, 2007). It means there is only 4% increment in 6 years. After the teacher certification program, there is 24.1% of primary school teacher hold the undergraduate degree (Baedhowi, 2009). It shows there is 10.1% increment in 3 years. The similar story applies to the junior high school teacher. The proportion of qualified junior high school teacher rose from 40% to 55% from 2000 to 2006 (EFA Secretariat, 2007). In other word, there is 15% increment over the 6 years. After the teacher certification program, there is 73.96% of junior high school teacher hold the undergraduate degree (Baedhowi, 2009). It shows there is 18.96% increment in 3 years.

Although the teacher certification program bring a high impact in the teacher qualification, an important note should be considered that this program give a financial implication. This increment mostly caused by the professional allowances (incentive) given to the certificated teacher. The teacher salary is already the biggest part of the educational financial component. When the government cannot covers all of this expenses, then the teacher quality cannot be maintain in the future. The projection of certificated teacher number and the professional allowances cost is figured in Table 5. The projection is set for the current number of teachers, not including the new

teachers in the future. Nowadays the prospective teachers who enter the universities with teacher education program do not have to join the teacher certification because they will receive their certification together with their undergraduate diploma. It is also expected that every new teachers are graduated from the universities with teacher education program, instead of a general universities.

Table 5. Projection of Cerrificated Teacher and the Professional Allowances

Year	Quota of certification	Cumulative number of teacher certified	% of teacher	Real annual cost (million Rupiah without inflation)	Nominal annual cost (million Rupiah with 7% inflation)
2006	20,000	20,000		158, 742	158,742
2007	180,450	200,450	8.5	3,608,100	3,860,667
2008	200,000	400,450	20	8,649,720	9,860,681
2009	346,500	746,950	40	16,134,120	19,522,285
2010	396,504	1,143,454	55	24,698,606	31,614,216
2011	396,502	1,539,956	70	33,263,050	44,905,118
2012	396,502	1,936,458	80	41,827,493	59,395,040
2013	258,055	2,194,513	90	47,401,481	70,628,207
2014	111,502	2,306,015	100	49,809,924	77,703,481
2015		Expected to be completed			

The projection number of certificated teacher is based on the quota set by the government. The projection is based on the assumption that all of the teacher following the certification will pass; although the fact shows that there are a number of teachers who do not pass the certification. Another assumption used is that all of the certificated teacher can fulfill 24 hours of teaching time and therefore will receive their professional allowances. In fact, there are a number of teachers who cannot fulfill this requirement.

The central government is fully responsible to give the teacher salary. Meanwhile the other financial post is funded by the central government and the local government. In addition, the Constitution 1945 stated that the "prioritize national education budget to meet the national education needs is at least 20% of the total national budget expenditures and the total local budget expenditures". Moreover the Law no 20/2003 stated that the teachers and educators salary must not be included in the total national education budget. It also must not be included in the total local education budgeting. Therefore the teacher salary and incentive is not counted as part of the national budget for education. This policy aimed to assure that the education fund, instead of the teacher salary, is highly concern by the government.

Baedhowi (2010) stated that due to lack of budget, the teacher certification quota has been reduced from 250,000 to 200,000 in 2008. Certainly, similar case should be anticipated so as not to happen again in the future. Otherwise, the government will not be able to achieve their goal to certify all of the teachers in 2015. In conclusion, since there is a high increment on teacher salary and professional allowances, this high obsession implies to high education financial. The government should carefully calculate the fund sources. It should be anticipated that the fund source should not be gained from foreign donors.

Current percentage of teacher holding an academic degree

As described in chapter 2, nowadays there were 2,607,311 teachers in Indonesia in 2009 (Baedhowi, 2009). There were 1,125,804 (75.9%) primary school teachers do not have undergraduate background and 130,973 (26.04%) junior high school teachers who have not met the requirement. This condition stated that the Indonesia Government still gave a big task to improve the teacher quality, especially for the primary schools teachers, since the primary education is the early basic education (Jalal, 2010).

Current teacher quality based on the number of certificated teacher

The number of certificated teacher is one of the qualified teacher indicators. The more number of certificated teachers is in the system, the higher teacher quality will be. The Directorate General of QITEP set out minimum 200,000 quota of certification in order to improve the teacher quality as soon as possible and to meet the EFA goals in 2015.

Table 6 shows the number of certificated teacher up to 2009.

Table 6. Number of Certificated Teacher (Source: Baedhowi (2009))

Year	Quota of certification	Document submitted	Number of certificated teacher
2006/2007	200,450	196,601	182,936
2008	200,000	182,609	171,577
2009	346,500	195,836	76,420
Total	746950	575046	430933

Table 5 shows that there are 430,933 certificated teachers (Baedhowi, 2009). This number does not include the number of teacher who still in the certification process. In conclusion there is 13.32% of the total teacher in Indonesia who does not hold the certification yet. This suggests that the Indonesian Government still have a big task to improve the teacher quality. Unfortunately there is no detailed information about the certificated teacher distribution, therefore the number of primary school certificated teacher and junior high school certificated teacher cannot be captured.

3.3. Capturing the Teacher Quality Problem in Indonesia

In order to study the teacher condition in Indonesia, all of the factors and data related to the teacher quality were collected. Interviews are performed to discover the factor related and capture what is really happening. Then the causalities of the variables are studied in detail to understand the relations. These relations are studied from the literature study and the interviews with the experts and related actors. The detailed information of the interviewed experts and actors are presented in Appendix B.

A causal relation diagram is used to better understand what happen in the teacher quality system. The causal relation diagram is chosen to capture the problem because of its advantages to indicate important factors and give insight into the factors relationship. Since the problem is complex and the factors involved are very much, a causal relation diagram may help to understand the how the problem situation come to be (Bots, 2002).

A CRD relationship presented in the system shows the changes of factor B when factor A is changed. The nature of influences is labeled by link with a "+", "-" or "?" (Bots, 2002).
A link from A to B is considered to be positive when:
  - An increase in factor A causes an increase in factor B;
  - A decrease in factor A causes a decrease in factor B.
A link from factor A to B is considered to be negative when:
  - An increase in factor A causes a decrease in factor B;
  - A decrease in factor A causes an increase in factor B.
A link from factor A to B is considered to be in a question mark when:
  - The relation of factor A to factor B has non-scalar value range or the relation is considered to be unknown or unsure.

A system boundary is defined in order to simplify the real situation so as able to model and have the deep understanding of the teacher quality system. This definition is used in the sense of what factors should be considered as part of the teacher quality system and what assumptions underlie these choices. The factors that already put in the CRD are considered to be included. It shows that those factors are responsible in causal relation chain within the system.

After the teacher quality system has been modeled in a CRD as shown in Appendix A**Error! Reference source not found.**, the system is divided into subsystems and all are related to each other. The subsystems were set to help us limit the problem from being very large and complicated. The system is divided into two subsystems, namely: the teacher quality subsystem and teacher quantity subsystem.

3.3.1. The Analysis of Teacher Quality and the Quality Improvement Policy
By accepting a premise that the education quality is affected by the teacher quality, Indonesia government pays high attention to the teacher quality. Law number 14 in year 2005 on teachers and lecturers was provided to increase the teacher and lecturer quality in order to increase the education quality. In this research, the law on teachers will be used as the keystone of the teacher quality definition.

A good quality teacher is a teacher who has the academic qualification, competencies, educator certificates and be physically and spiritually healthy to realize the national education goal (Republic-of-Indonesia, 2005). The academic qualification refers to a minimum level of academic qualification of bachelor's degree (S1) or four-year diploma program (D4). The competencies mentioned in the law are the pedagogical competencies, personal competencies, social competencies and professional competencies. These competencies can be acquired through professional education. The educator certification is awarded to the teachers who already meet the requirements and awarded by the accredited universities teacher training institute and appointed by the central government (Republic-of-Indonesia, 2005).

In this research, two indicators of academic qualification and educator certification will be considered in the CRD. The indicator of competencies has already been covered by the educator certification since the certification will be given to the teachers if they already fulfilled all of the required competencies. The detailed design and implementation of teacher certification is elaborated in chapter 2. The indicator of physically and spiritually healthy will not be considered in the CRD because of the measurement difficulties. The causal relation between the factors affecting the teacher quality is presented in a CRD as shown in Figure 8 meanwhile the detailed explanation of the causal relation between the factors can be seen in Appendix A.1.
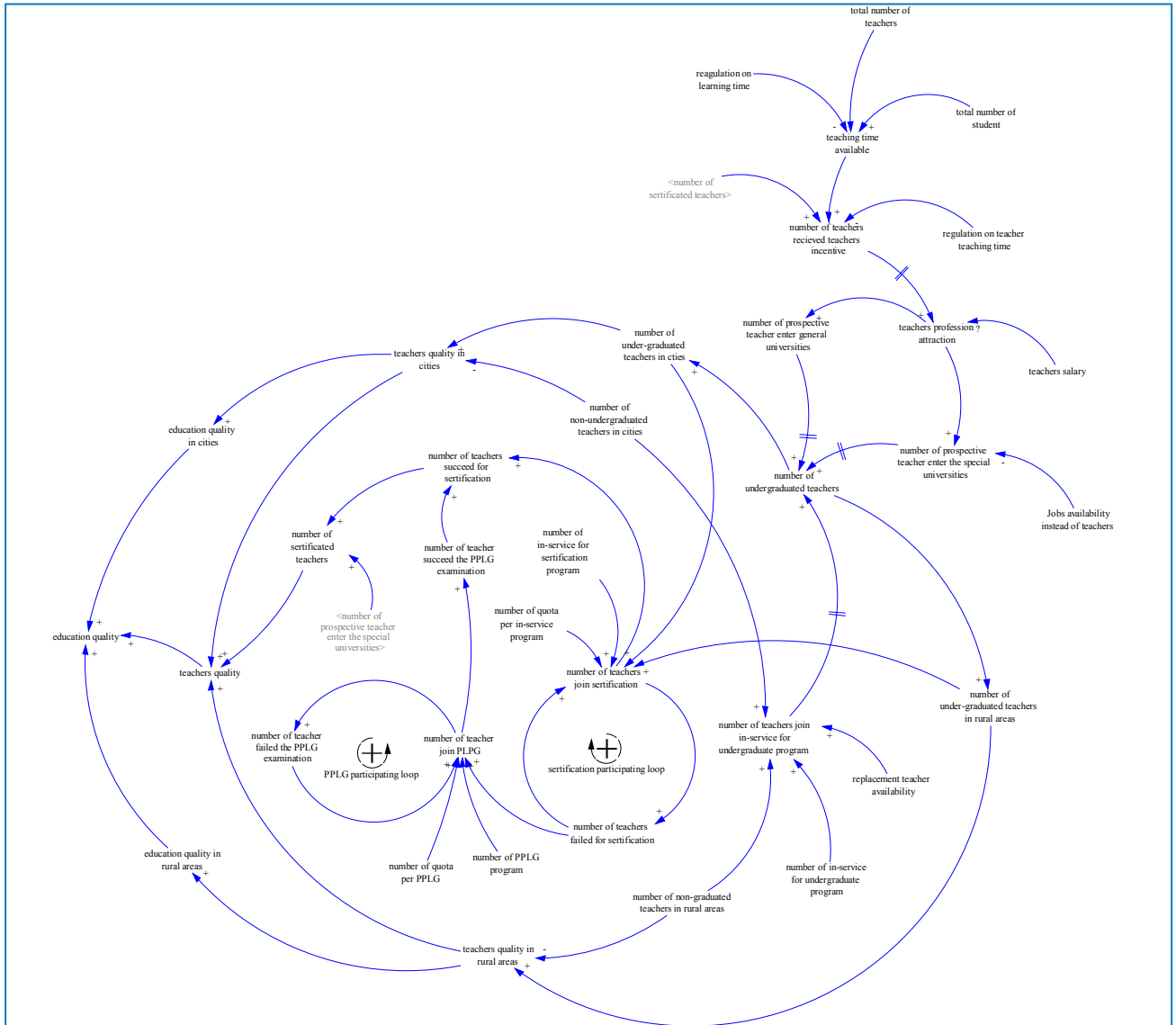
Figure 8. Teacher Quality Subsystem

From the CRD in Figure 8, we can see that education quality depends on the teacher quality in cities and rural areas. The teacher quality is determined by the number of certified teacher and the number of teachers with undergraduate degree. The teacher quality also depends on the candidates' quality. In the CRD, it is specified as the number of prospective teacher enters the teacher education program. The good quality of prospective teacher will increase when the teacher profession attraction increase. However the teacher quality in the cities and the rural areas is different because of the lack facilities in many rural areas if we compare it with the facilities in many cities. The teacher training institutions in the rural areas are very limited, in result only few prospective teachers from the rural areas enter the teacher education program. Additionally the number of universities in the rural areas is also limited. They must move to the cities if they want to acquire good teacher education program. Rural areas teachers also find more difficulties to improve their quality since the information access and books availability in many rural areas are

limited. The further description about the difference between facilities in the cities and the rural areas is elaborated in section 3.3.2.

3.3.2. Capturing the Difference of Teacher in Cities and Rural Areas.

The premise that the education quality is affected by the teacher quality is also come into line with the UNESCO country members' agreement to take concrete actions to increase the teacher quality. As described in chapter 2, there are four quantitative indicators and four qualitative indicators proposed by the Task Force on Teachers for EFA (TFTE) to assess the teacher quality in the world. One of the indicators is the projections of increase in teacher stocks needed to achieve Universal Primary Education (UPE) by 2015.

As discussed in section 3.1 that based on the criteria and indicators set by TFTE, the teacher quality and its policy in Indonesia is already good. Generally, Indonesia has fulfilled the quantitative indicators and qualitative indicators. Nevertheless, we can still found many problems related to teacher in Indonesia. Although the Indonesia has a sufficient number of teachers in the country level, we can still find a lack of teacher in many rural areas. A CRD is used in order to understand what the underlying cause of this problem is. In this CRD, the indicator is interpreted as the number of teacher needed and the teacher number gap. The factors influences the number of teacher is shown in the teacher quantity subsystem as shown in Figure 9.
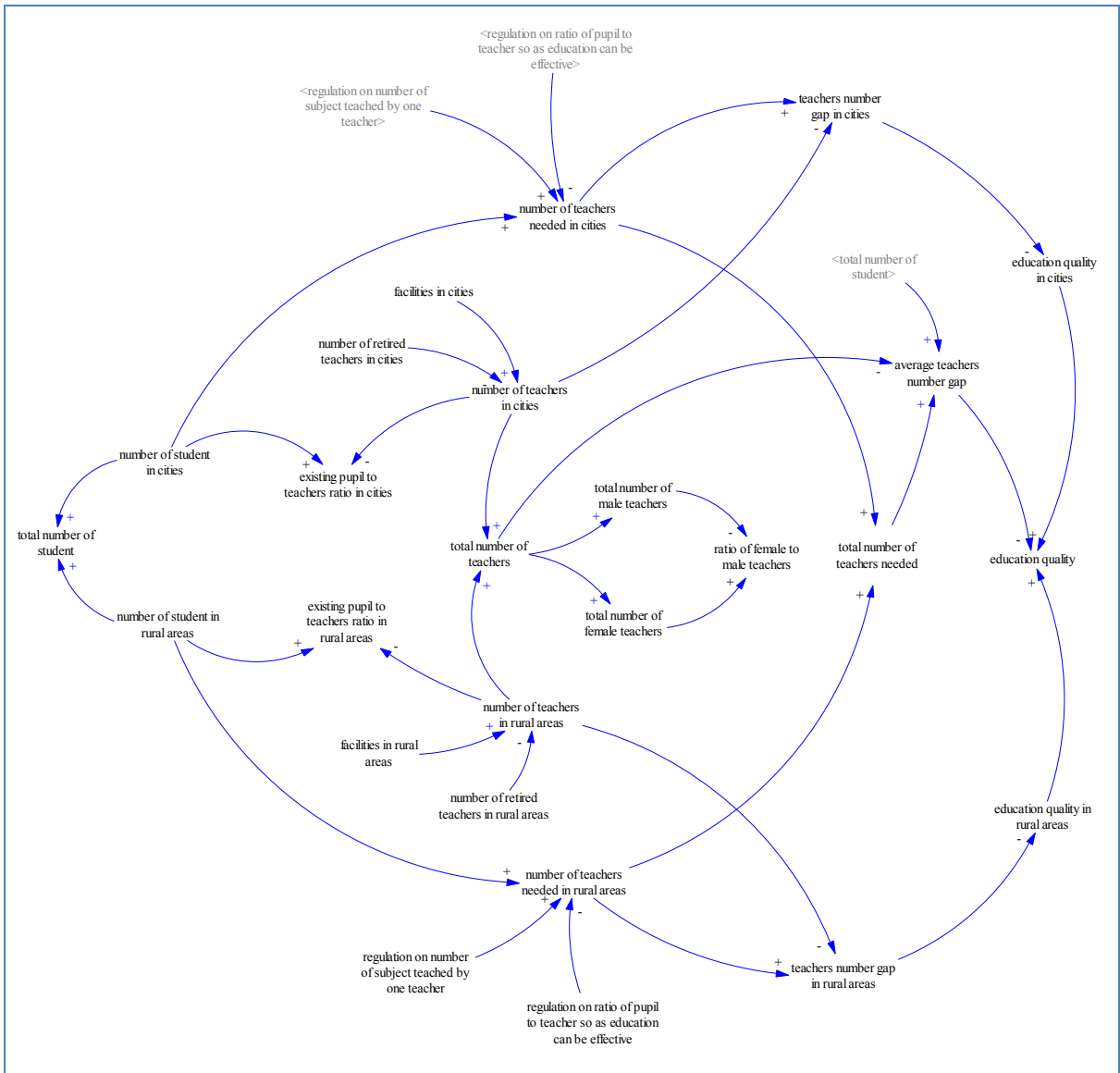
Figure 9. Teacher Quantity subsystem

The teacher number gap is determined by ratio of the number of teacher and the number of teacher needed. In Indonesia, since the number of student in cities is higher than the number of student in rural areas, then the number of student of teacher needed in the cities is also higher than the number of teacher needed in the rural areas. In result, the number of teacher in cities is also higher than the number of teacher in rural areas. Whereas UNESCO has reported that Indonesia has fulfilled the number of teacher stocks needed with the pupil-teacher ratio of 1:19 (Otchet & Frostell, 2009), when we compare the ratio of the number of teacher and the number of teacher needed between cities and rural areas, we can find that the number of teacher in cities has fulfilled the pupil-teacher ratio of 1:40 but this condition does not apply to the rural areas.

Susilowati is a one of the primary school teacher and a head master in SD Windurejo in Kutoarjo sub-district, Mojokerto district, East Java Province. This school can be considered as one of the primary school in a rural area. Susilowati (10 April 2010) stated that the number of pupils in the

school is low, whereas they might need more teachers. The pupil number is about 35 to 45 pupil for each level. In average there are 22 pupils per class. So they will be 2 classes for each level. In other hand, there are 9 teachers, include the head master, so as in average 1 teacher can teach 2 classes. Therefore, it can be said that they need more teacher if they want to apply the regulation of one primary school teacher is teaching one group of pupil (one class).

Another phenomenon is given by Nugraeni (9 April 2010). She explains that the number of pupil in the first grade to the third grade of SD Ungaran I, Yogyakarta City is 30 pupils per class. There are 2 classes for these grades. Whilst for the fourth to the sixth grade, there are 40 students for each grade. In result, there are 10 classes in her school. In the other hand, there are 13 teachers, include the head master, is teaching in the school. This fact leads to the shortage of teaching hours. This teaching time shortage is experiences by one of the sport teachers in SD Ungaran I. There are 30 hours of sport subject which is thought by 2 teachers. One teacher can fulfill his 24 hours teaching time but the other teacher only can fulfill 6 hours of teaching time. For this reason, he has to teach in other school for the rest 18 hours teaching time per week. In conclusion, it can be said that as if there are too many teachers in the cities.

The difference facilities between cities and rural areas and social factor are several factors influence the high number of teacher in cities and less number of teachers in rural areas. The better cities transportation infrastructures, health care and education facilities attract people to live in the cities rather than rural areas. Parents also tend to ask their children to move to cities in order to get better education (Elley, 1976). Another fact is that more teachers apply to be a teacher in cities after they finish their teacher education program in cities.

Additionally, another problem was also disclosed by Ngatijan (13 Maret 2010), Subandiyo (22 Maret 2010) and Nugraeni (2010). They stated that some teachers should teach in other school in order to fulfill their obligation to teach 24 hours per week before they could acquire their incentive. The 24 hours teaching time could not be achieved since there are an excessive number of teachers in cities. Previously regulation only requires 18 hours of teaching time, yet now it requires 24 hours per week. Meanwhile the student learning time is lessening. For instance, previously the regulation denotes that the learning time for the junior high school was 42 hours of learning time per week, nowadays it become 36 hours per week. These changes caused the teachers lose their teaching time meanwhile the student learning time is lessen.

3.3.3. Overview of Teacher Workload and Number of Teacher Needed

Figure 10. Teacher Workload and Number of Teacher Needed Subsystem

The education quality is determined by the average teacher number gap and the teacher quality. When we look at the teacher quality, it is affected by their education and their professionalism. When a teacher has been educated in the undergraduate level and they are maintaining the professionalism, they can be stated as high qualified teacher.

In order to maintain their professionalism, they should continuously read, join trainings, do innovative research, and many other professionalism developing activities. In addition, a teacher should also improve their knowledge by learning at the higher level, for example taking the master program for those who already hold an undergraduate degree. They will not be able to continuously develop their professionalism if they do not have enough time caused by their high workload.

The QITEP regulates that a teacher should teach minimum 24 hours of teaching time per week before they acquaint their professional allowances. Based on the interview on five teachers in rural areas and in cities, they stated that the teacher workload set out by the government (QITEP) is too much. Even though their teaching time is considered to be the same, as 24 hours of teaching time, one teacher might have a different workload than other teacher. One teacher may have too excessive workload meanwhile others might have less workload. By using the Causal Relation Diagram, the factors influencing the teacher workload is analyzed to understand why the teachers complaints on this matter. The *total teacher workload* is determined by four factors: *the number of subjects*, *the number of classes* taught by a teacher, *the class teaching system* and a factor which a teacher has a job side.

The more the subjects teach, the higher the teacher workload will be. A primary school teacher who become a class teacher and teach all of the subjects (except religion and sport) will have a

heavier work load than the junior high school teacher who only teaches one subjects. The primary school teacher will need to prepare the materials for all of the subjects. Meanwhile the junior high school teacher can prepare the materials once and then use it to teach several classes (Nugraeni, 2010). The same story applies to the junior high schools teachers. When a teacher teaches several cognate subjects; for example the economics, history, geographical and sociology as a social science; then his/her workload will be higher than a teacher who only teaches one subjects, for instance Bahasa Indonesia (Subandiyo, 2010).

It can be directly concluded that a teacher teaches more than one class will have a higher workload than a teacher teaches one class. It also depends on the class teaching system (Kunaefi, 2010; Suharwoto, 2010). When a teacher is teaching several classes but still in one grade, then he/she might prepare the materials once and then use it to teach several classes. On the other hand, when a teacher teaches several grades, then he/she have to prepare the materials for every class. This occurs at the schools with small number of classes. For example a junior high school that only have one class for each grade, then the mathematics teacher will have to prepare the materials for three different grade and only use the materials once for each grade. In this case, the teacher will have a high workload.

A teacher task is not only to prepare the materials and to teach in front of the class. There are many tasks should be accomplished (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2008). In general, a teacher task is started by breaking down the yearly plan into monthly and daily teaching plan based on the curriculum given by the Ministry of National Education. Based on the daily learning plan, the learning material is prepared. The learning material preparation includes the preparation of the teaching method and strategy, the teaching objects and tools (if necessary), the introductory sentences and what question will be given to the pupils. The learning materials is written and reported in the preparation report. Afterwards the teacher teaches face-to-face in class and supervises the discussion and learning activities. The class activities is resumed and reported after the class activities has been executed by making the daily activity report. The daily activity report included what question is given in class and how many students able to answer these questions. If there is a number of students cannot answer the question, then the teacher should analyze the problem and plan to re-explain to the students in the next day. After one sub-subject material is completely given, then the teacher should prepare the evaluation method and question. The next teacher task is to assess the evaluation and give score to the student. In some cases, the subject matter evaluation needs to be discussed in class, in order to find out whether the pupils have completely understood or not. If there is a big number of students who has not completely understand, then the teacher should prepare the re-evaluation or re-explain the subject matter.

Subandiyo (2010) and Ngatijan (2010) stated that for one teaching hour in the junior high school level (45 minutes), a teacher needs approximately 60 minutes to prepare the materials, 45 minutes to do the correction and analysis. In conclusion, to be a good teacher they should spend 150 minutes in total to teach one hour of teaching time. If they have to work for 24 hours, then they should spend 3600 minutes or 60 hours per week. In other words they should spend 10 hours per day (in six working days). Ngatijan (2010) explains that since he cannot fulfill 24 hours of teaching time, he has to teach in other school. Therefore he has to spend more time to mobilize from one

school to the other school. Sometime he has to come late to class since the mobilization took some time.

Nugraeni (2010) described that the primary school teacher has heavier workload than junior high school teacher. She compare her condition with her sister condition who become a junior high school teacher. She explains that her workload become higher than her sister since she becomes class teacher who teach almost all of the subjects. In addition, since the school where she taught is the best primary school in Yogyakarta city and become a model school, then she has an additional task to give guidance to other schools by giving training. Moreover the teachers in model schools have an additional training to improve their skills and professionalism. Furthermore, she also joins innovative teaching method competition to improve her professionalism. As a result her workload becomes very high.

A different story applies to the rural areas teachers. Susilowati (2010) stated that there is not many activities other than teaching. The teachers extra task is only to teach the extracurricular program. Nevertheless there is not much extracurricular program diversity. In addition some extracurricular program is taught by non-permanent teacher. As result, the teacher workload in rural areas is not as heavy as the teachers in cities.

Subandiyo (2010) explains that nowadays the teacher workload is lessen than before. It caused by the lessening of number of student in one class. The fewer the number of the student then the teacher workload will be less. Nowadays, since a teacher also has a task to observe and pay attention to their students' growth and development, the number of student in one class is lower than before. In present, one class is filled by 28 students and 32 students for primary school and junior high school.

When we look at the CRD, the education quality is also determined by the average teacher number gap. The *number of teacher in cities* is excessive (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2008; Ngatijan, 2010; Nugraeni, 2010; Subandiyo, 2010). Meanwhile based on two interviews of teachers in the rural areas, they do not find a problem of excessive number of teacher. Therefore it can be stated that the *number of teacher in rural areas* is not excessive (Andayani, 2010; Susilowati, 2010).

There is a different condition of the teacher gap in cities and rural areas. This condition is caused by the difference of teacher number in cities and rural areas. It can be said that there is no teacher number gap in cities, meanwhile this problem exist in the rural areas. The number of teacher needed in the rural areas is larger than the number of teacher available.

There is a uneven teacher distribution between the cities and rural areas (Suharwoto, 2010). Andayani (2010) explains that nowadays it is not possible to move a teacher from one district to another district. In 1997, she has an experience about moving from a Junior High School teacher in Mojokerto district to Situbondo district. At that time, this condition is still possible since the teacher distribution is under the QITEP responsibility. After the decentralization policy, the teacher distribution responsibility has swift to the District Education Service Agency responsibility. Moreover nowadays the teacher salary is given by the central government and the local

government. Therefore the local government (in district level) becomes very tight in this matter. Kunaefi (2010) dan Suharwoto (2010) stated that the teacher movement will only apply to specific cases, for example when a teacher is requested to assist the national interest in the international level such the Suharwoto's case. Another example applies when someone wants to move to a very remote area which is lack of teachers. In other words, no teacher wants to teach there since there is no facility. So when a teacher wants to move to that remote area, then the local government accept the movement request (Andayani, 2010).

3.4. Conclusion

When we look again at the research framework in chapter 1, we can see the 6 TFTE UNESCO criteria in section 3.1 and 5 Indonesian Government criteria in section 3.2 which are used to capture the current teacher condition in Indonesia. These criteria sited in the left side of the framework. When we compare the criteria of TFTE and Indonesia, we can draw different conclusion where there is many problem regards the teacher quality in Indonesia.

The Task Force on Teacher for EFA (TFTE) develops a tool to capture the world's teacher gap. This tool consists of 3 quantitative and 3 qualitative indicators. Indonesia is projected able to meet the first quantitative indicator of the increase of teacher stocks needed to achieve UPE by 2015. Moreover the gender specific EFA-index (GEI) in Indonesia is 0.963. It can be said that there is no big gender disparities in Indonesia education. Indonesia also does not experience a severe gap on the third quantitative indicator: Indonesia has fulfills the pupil to teacher ratio by the current ratio of 19:1. Indonesia also has proven their high concern and support to the education quality, especially the teacher quality. Based on the EFA Global Monitoring Report 2009, the survival rate in Indonesia is 0.844. This means that Indonesia has successfully educates their pupils proven by 84.4% of the total number of primary school pupil able to survive up to the 5th grade.

The Education reform in 2003 brings a new and supporting legal environment to recondition the education system. School accreditation, teacher certification and curriculum setting are means to assure the education quality. These mandates prove the Indonesian Government high concern to the national plan to achieve EFA goals, including the improvement of the teacher quality.

In conclusion Indonesia is considered that there is no severe problem related to the education system and Indonesia is projected to be able to manage their education problem. Nevertheless Indonesia still has to increase the survival rate, lower the repetition rate, and train and recruit many teachers.

When we look at the current teacher condition in Indonesia based on the indicators set by the Indonesian Government, we can see a different conclusion from the teacher condition captured by TFTE. There is sufficient number of teacher in Indonesia as stated by TFTE but we can find lack of teacher problem in many areas. In fact there is an oversupply of teacher number in Indonesia but we can also find an undersupply problem of teacher. In the gender balance in teaching profession, the gender balance is achieved in the public schools, especially in the Early Childhood Care and Education and Basic Education level. However there are still some gender disparities in the teacher qualification between female and male teachers since there are more male teachers who hold the undergraduate degree.

Indonesian Government objective to increase the education quality and teacher quality implies to high education funds that the government should spent. The government should carefully calculate the fund sources so as the fund source should not be gained from foreign donors. Indonesian has to work hard to improve the teacher quality since there is still low percentage of teacher holding an academic degree and certificated teacher. Nowadays there were 2,607,311 teachers in Indonesia in 2009 but there were 1,125,804 (75.9%) primary school teachers who do not have undergraduate background and 130,973 (26.04%) junior high school teachers who have not met the requirement. Moreover there are 430,300 certificated teachers or 13.32% of the total teacher in Indonesia. This suggests that the Indonesian Government still have a big task to improve the teacher quality.

The underlying problem is analyzed using the causal relation diagram and based on the interviews. The interviews are performed to discover the problem on the different actors' perspective. The actors interviewed are the Teacher Training Institute (universities to educate teacher), the Directorate of Higher Education, the Directorate of Quality Improvement for Teacher and Education Personnel, the teachers in rural areas and cities, and the education service agency.

Based on this analysis, we can conclude that there are two big problems which may hamper the teacher quality improvement: the high teacher workload and the unbalance teacher distribution between cities and rural areas. The high teacher workload limits teacher self-study time. Meanwhile the unbalance teacher distribution hampers teachers to fulfill their obligation to teach 24 hours per week. Chapter 4 will deal with the policy analysis to solve these problems.

Chapter 4. Problem Exploration and its Alternative Solutions

The purpose of this chapter is to analyze what alternative solutions can be proposed to solve the problem captured in chapter 3. To give the summary of the problems would be, two problem statements are formulated as follows: (1) How can we balance the number of teacher in the rural areas and the cities while maintaining the sufficient quantity of teacher? and (2) How to improve the teacher quality without increasing their workload?

In order to search the promising policies to solve the problems, a research stages is used. First, a system diagram is set to understand the system boundary and distinguished the factors from the causal relation diagram as shown in chapter 3, into several factor categories. These factors will be distinguished into factors in the system, external factors and factors which might be possible means. The detailed explanation can be seen in Appendix C. More creative possible means are analyzed using the means-end diagram as shown in Appendix D. Later, these possible means are analyzed using new criteria instead of using UNESCO criteria and Indonesia Government criteria used in chapter 3. These new criteria were set to assure its implementation possibility and implication in the future. The criteria will be explained in section 4.1.2 and 4.2.2. Then the promising means will be ensemble as alternative policies. After its screening using criteria in 4.1.3 and 4.2.3, the promising policies will be proposed. In conclusion, the stages to search for the promising policies are presented in Figure 11.
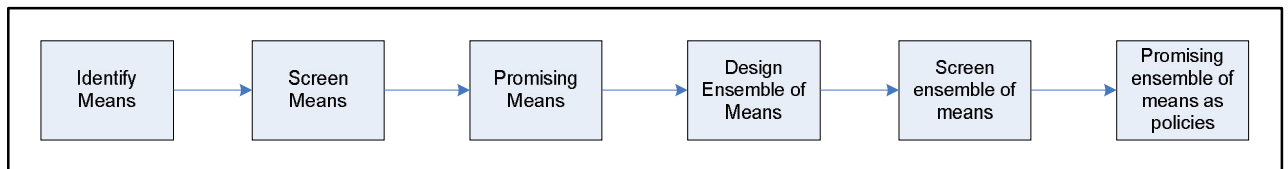
Figure 11. Research stages to search for promising policies

This chapter is divided into two parts. The first part (section 4.1) is dedicated to discuss the alternative solution to solve the first problem statement of teacher distribution. The second part (section 4.2) gives the picture of alternative solution to cope the second problem statement of teacher workload. Every part will explore the problem delineation, uncertainties and externalities, and alternative related to its problem.

4.1. Coping the uneven teacher distribution

From the analysis in chapter 3, we can see that the uneven distribution causing the excess number of teacher in cities meanwhile there is a lack of teacher number in rural areas. However after the autonomy regulation implementation, a teacher mobilization from one district to another district is hardly possible. The teacher movement only applies to specific cases as mentioned in section 3.3.3.

4.1.1. Teacher Distribution System

System thinking is used in this research to analyze the solution. All the related factors are put in a system as a whole, and analyzed which factors are influencing this system and what would be the outcome expected in order to reach the defined goal. The system and its boundary are defined in system diagram in Appendix C.1.

The teacher problem is not a solely technical issue. Two subsystems of teacher and student in the cities and the rural areas are identified in the teacher distribution system. These subsystems are placed in the system diagram (See Appendix C.1.) and connected to the external factors[4] and steering factors[5]. The "Teacher and Student in Cities" subsystem represents the mechanisms of increasing and decreasing of the teacher and student number in cities. Meanwhile the subsystem of "Teacher and Student in Rural Areas" represents the increasing and decreasing mechanisms of teacher and student number in rural areas. These subsystems cannot be seen as separately functioning systems. They receive input from the other subsystem and from external factors. Alternative policies as the steering factors will also influence these subsystem. Policies as the steering factors will also affect the subsystem mechanism.

Three criteria are used in this system diagram to measure whether the degree to which objectives to have a better teacher distribution in the cities and rural areas have been met. These criteria are: percentage of teacher who teaches less than 24 hours per week, student to teacher ratio, and average teaching hours. Three external factors and four steering factors may affect the system. The external factors that can have impact on the system are: number of teacher leaves their job, facilities in cities, and social factors. Whilst the steering factors include the regulation on student to teacher ratio, regulation on number of subject thought by one teacher, regulation on additional salary given by district government, and improvement on the facilities in rural areas. The detailed explanation can be seen in Appendix C.1.

4.1.2. Assessment of Means for Teacher Distribution Problem

There are several means which will influence the teacher distribution problem; namely: improve school quality in rural areas, improve facilities in rural areas, formulate policy to oblige new teacher to teach in the rural areas, ease certification for rural area teachers, give incentive for rural areas teacher by the central government, raise the additional salary for rural areas teacher by the district government, formulate good teacher mapping, formulate teacher distribution management in province level, and formulate teacher management in national level. These means can be seen in the Means End Diagram in Appendix D.1. The nine means will be explained and assessed in more detail as follows:

1) Improve school quality in rural areas

   Since nowadays there is a difficulty to move teacher from one district to other district, a policy to attract new teacher to apply in the rural areas become important. By improving the school quality in rural areas, it is expected that more new teacher are interested to teach in the rural areas. The improvement embraces the infrastructures, school and teaching facilities and information access. Yet it should be denoted that this improvement need both good teacher and infrastructures. A good quality school will not be achieved without good teachers although it has a good school infrastructure. It will also not be achieved if it has good teachers but less school infrastructure. Since it need long term planning and high investment to improve good

---

[4] External factors are factors that cannot be influenced by the problem owner but can influence the problem system (Enserink, Hermans, Koppenjan, Kwakkel, & Thissen, 2009)

[5] Steering factors are instruments/means/policies that the problem owner can use to achieve a certain objective/goal (Enserink, et al., 2009)

school infrastructure, meanwhile the teacher distribution problem need to be solved immediately without high investment, this alternative may not seem to be promising for this current time. Nevertheless the school quality improvement by improving teacher quality and school infrastructure will lead to good education quality in the future.

2) Improve facilities in rural areas

It could be denoted that the public facilities availability in the cities is better than the public facilities in the rural areas. Many people think that comfort and convenient live can be get by living in the cities. This reason attracts more teachers to work in the cities. The rural areas facilities improvement, for instance the transportation infrastructures and health care facilities, will help to attract more teachers to the rural areas.

The rural areas facilities improvement depends on many actor beside the actors related to the education field. This improvement will also take a long time frame, whilst the teacher distribution needs to be solved immediately. Therefore this alternative may not seem to be promising for this current time. Nevertheless it will bring good impact in the future where people will not be reluctant to live in the rural areas anymore since they can find the facilities they may need.

3) Teacher recruitment by schools

Nowadays teachers are recruited as civil service personnel by the central government through the District Education Service Agency since their salary is paid by the central government. This process will take a long process and they will be assigned to teach in the district where they apply. In result, districts with good human resources quality will able to recruit good teachers. In the other hand, districts with less quality human resources only can have less quality teachers. Finally the districts with less quality human resources will have less quality of education.

When we implement the teacher recruitment by schools through the school-based management program, good quality teachers will be recruited by good schools. Less quality teachers will have to improve their knowledge and capability if they want to be recruited by good schools. This condition will increase the competence within teachers and it is expected able to increase the teacher quality in the future.

Nevertheless, if teachers are recruited by the schools, then good schools will able to have good quality of teachers. Meanwhile less quality schools will only able to recruit less quality teachers. As good schools are usually located in the cities, the good teachers will be concentrated in the cities. Less quality teachers will have to move to rural areas where they can find less quality schools. In the future, the education quality in the rural areas will be lessening.

Although considered do not require a lot of money and feasible in its implementation, this means might bring undesirable long term implication on the rural areas teacher and education quality.

4) Formulate policy to oblige new teacher to teach in the rural areas

If there is a possibility to move teacher from one district to another district, the policy to oblige new teacher to teach in the rural areas can help to fill teacher vacancies in the rural areas. After several years teaching in the rural areas, they might choose where to teach. Two advantages achieved from this policy means is that it will not cost a lot of money and it may distribute the teachers to rural areas in a relative short time.

It should be considered that the obligation for new teachers to teach in the rural areas might cause the teacher profession lose its attractiveness in the future. When the teacher profession attractiveness is lessening, then the teacher quality might also be lessening. This causal relation is explained in chapter 3. Furthermore this policy only applies if there is an easiness to move teacher from one district to another district.

5) Ease certification for rural area teachers

Every teacher should be certified before they acquire the professional allowances. The facilities for rural areas teacher to obtain their certification will attract teacher to move from cities to rural areas. The facilities given may be in the form of the additional credit given to rural areas teacher so as to be added to their certification portfolio grade. Although this policy means does not require a lot of money, able to solve immediately and feasible to be implemented; it should be denoted that this policy might affect the teacher quality since there is easiness for rural areas teacher to be certified. Less qualified teacher may be certified although they do not fulfill the requirement.

6) Give incentive for rural area teachers by the central government

The financial incentive given to the teachers in rural areas will attract teacher to teach in the rural areas. However this incentive should be given by the central government.

One of the reasons why it is difficult to move teacher form one district to other district is the payroll system. When a teacher is moved from district A to district B, then the district B government should pay for the salary of this teacher. This payroll system leads to district reluctant. This condition also applies to the incentive given by rural areas district government if they have more teachers. Therefore the central government should take over the incentive for the teachers moved from cities to the rural areas.

However it should be noted that this incentive may burden the central government finance since the central government is already responsible to give the teacher basic salary and the professional allowance[6]. Since the amount of the professional allowance is as much as the basic salary, the central government already has the doubled financial burden. An additional amount of incentive would heavily burden the central government monetary.

---

[6] The professional allowance is given to the certified teachers who can meet the requirement to teach 24 teaching hours per week. The amount of the professional allowance is as much as the basic salary.

7) Raise the additional salary for rural areas teacher by the district government

Since the autonomy, the district government is obliged to give additional salary to the teachers based on their capability (Syamsury, 2010). This additional salary is given based on the district government capability. When the rural areas government wants to attract more teachers to teach in their district, the government might raise the amount of the additional salary. The additional salary can be given in different schemes, for instance transportation fee or additional monthly salary.

One important consideration should be noted is that since there is a different capability between districts; the government with lower ability will not be able to attract more teachers.

8) Formulate good teacher mapping

The Education Service Agency in the district level is responsible to map the teacher condition and necessities (Syamsury, 2010). This mapping will show how many teachers are needed to be recruited or moved. This mapping is build based on the teacher condition data from each school. Nowadays we can still find some district who has no teacher data and mapping, hence a regulation to force every district to map their teacher condition become a very important issue. Without this data and map, the teacher distribution and management will be very difficult (Baedhowi, 2010).

Although the teacher data and mapping is very important, we can still find many district do not have these data (Baedhowi, 2010). It usually takes place in the new expansion districts. These districts established with new administrative regions at the provincial or district level (Republic-of-Indonesia, 2004). Moreover this teacher mapping will be useless if not used as supporting data in the teacher distribution management.

In the future, the teacher mapping is expected able to map every teacher in condition in Indonesia. With the Information and Communication Technology (ICT) help, the teacher mapping is expected able to be an online database which can be accessed by related actors.

9) Formulate teacher distribution management in province level

As explained in chapter 2, the law no. 32/2004 on Local Governance stated that the education management as one of the basic public services which is managed by the local government in the district level. However this policy brings consequences that it is difficult to move teacher from one district to other district. In result, the teacher distribution problem cannot be solved immediately. By putting the teacher distribution management in province level, it will ease the teacher move at least between adjacent districts (Meutia, 2010). By moving teacher from one district to another district, it will help to solve the teacher distribution in a short time without requiring a lot of money. Nevertheless, this policy implementation will required a good teacher mapping from every districts and good coordination between the district governments. Therefore agreement between relevant actors should be established. The district governments need to have agreement for the teacher mobilization process and regulation. When the agreement can be achieved, the teacher distribution can be well managed in the future.

10) Formulate teacher management in national level.

Indonesia consist 33 provinces with different development level and condition. By putting the teacher distribution management at the national level, the lack of teacher in one region should be supplied from other region. In other hand, the teacher oversupply in one region or province can be reduced by distributing these teachers to other region or province. This policy implementation will also require a good teacher mapping from every districts and good coordination between related actors. Three ministry should be involved in order to manage the teacher distribution in the national level (Latief, 2010). These ministries are the Ministry of National Education, Ministry for Home Affairs, and Ministry of State Apparatus Empowerment and Reform Bureaucracy. The Ministry of National Education has to assure that every region has sufficient number of teacher. The Ministry of Home Affairs associated with the local governance and autonomy implementation (Pusdatinkomtel, 2009). The Ministry of State Apparatus Empowerment and Bureaucracy Reform is in charge to manage and distribute the civil service personnel, include teacher. An agreement between these ministries to enable the teacher mobilization from one region to other region should be established (Meutia, 2010).

Several advantages can be taken when we implement this means. It will able to solve the teacher distribution problem in a relative short time by moving teacher from an oversupply region to the region which is lack of teachers. It will also enable to well-distribute teachers in the future without a lot of money.

After looking at the advantage and disadvantage of the alternative solution, we come out with an assessment based on several criteria. The criteria are the *financial implication, long term implication, ability to solve immediately* and *implementation feasibility*. The first criterion of financial implication is used to maintain that the policy does not burden the government monetary. The criterion of long term implication is used to assure that the policy chosen will not lessen the teacher quality in the future. The criterion of ability to solve immediately is used to confirm that the policy will be able to solve the problem as soon as possible. The last criterion of the implementation feasibility is used to assure that the policy will be able to be implemented. The difficulties in the negotiation process and limited resources to support the policy implementation are the examples of the low implementation feasibility.

Table 7 below is the score card[7] provides the comparison of policy means implementation. The colors are used to describe how favorable the outcome is expected to be for each policy means. The green color is the most favorable outcome, yellow as less favorable, and red as the least favorable outcome.

Table 7. Policy Means Score Card for Teacher Distribution

	Policy Means									
	Improve rural areas school quality (1)	Improve rural areas facilities (2)	Teacher recruitment by schools (3)	New teacher oblige to teach in rural areas (4)	Ease certification for rural areas teacher (5)	Incentive for rural areas teacher (6)	Additional salary for rural areas teacher (7)	Teacher mapping (8)	Teacher distribution management in province level (9)	Teacher distribution management in national level (10)
Financial implication	red	red	green	green	green	red	red	green	yellow	yellow
Long term implication	green	green	red	red	red	yellow	yellow	green	green	green
Ability to solve immediately	red	red	yellow	yellow	green	yellow	yellow	yellow	green	green
Implementation feasibility	red	red	yellow	yellow	green	red	red	yellow	red	red

green — Most favorable   yellow   red — Least favorable
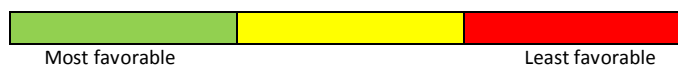
4.1.3. Evaluating the Ensemble of the Means to Cope Teacher Distribution

After assessing the advantage and disadvantage of the means, we come out with some means ensemble. The ensembles are combination of several means to gain effective result of the policy implementation based on four criteria of *financial implication, long term implication, ability to solve immediately* and *implementation feasibility;* which are proposed as alternatives policies to solve the teacher distribution problem.

Several ensembles of means were set in this research, for example (1) give incentive for rural areas teachers meanwhile decrease the cities teacher salaries and (2) oblige new teacher to teacher in rural areas and give incentive for rural areas teachers. But when do the assessment, these

---

[7] The score card method is used to compare different means. The comparison is not to judge whether an alternative is 'bad' or 'good', but to show the difference from other alternative (Bots, 2002).

ensembles of means are less favorable since it may bring undesirable impacts. Considering the big current number of teachers in Indonesia: 2,7 million teachers; the first ensemble to do the cost-neutral policy by giving incentive for rural areas teachers while decreasing the cities teacher salaries may lead to social bond among teachers, since they does not want their salary to be decreased. The ensemble of oblige new teacher to teacher in rural areas and give incentive for rural areas teachers might bring jealousy between teacher in the rural areas and the cities. Another undesirable outcome might emerge is the civil servants jealousy to the teachers. The civil servants who help the teacher movement administration will be jealous because they do not get incentive but the teachers who they helped will get incentive (Baedhowi, 2010). When this jealousy occurs, the civil servants might be reluctant to do these administration works, and finally the implementation of the policy to oblige new teacher to teach in rural areas and give incentive for rural areas teachers might be hampered.

After the assessment on the undesirable outcomes, four favorable ensembles of means are proposed. The chosen proposed policies are described as the following:

1) Zero Option

    In zero option, no new policy nor new programs will be implemented with result of existing condition continuation. In general no policy impacts, include the financial and long term implication, are expected because we do not change anything. This option is also considered not o solve the problem immediately, and it is feasible to be implemented. Since the existing condition will continue as usual, no institutional adaptation is needed.

    In addition, this policy is our baseline. It becomes the reference point to compare the expected outcome after the proposed policy implementation and the current situation. This comparison will enable us to observe improvement achievement by the policy implementation.

2) Policy to attract teacher in the rural areas

    This policy is a combination of *Improving school quality in rural areas*, *Improve facilities in rural areas, and Ease certification for rural area teachers.* The school quality will be better improved in a support of rural areas facilities improvement. Nonetheless the combination of school quality and rural areas facilities improvement will still not enable to solve the teacher distribution problem in a short time, hence a policy to attract teacher to become a rural area teacher in a short time is still needed. Since the means of *ease certification for rural area teachers* is considered able to solve the teacher distribution problem in a short time, the combination of these means weigh possibility to be a good policy. As a result, this policy will enable to solve the teacher distribution problem immediately by ease the certification for rural area teachers and prevent the lessening teacher quality by improving the rural areas school quality and facilities in the future.

    One important matter should be noted is that the coordination between actors involved in this policy implementation should be well negotiated. In order to improve the school quality and rural areas facilities, the Ministry of National Education should coordinate with the Ministry of Finance, the Province Governments and the District Governments. The coordination with the Education Service Agency, Agency of Public Works and Agency of Transportation in the province

level will be coordinated by the Province Governments; meanwhile the coordination with the Agencies in the district level will be coordinated by the District Governments. The negotiation to deal with the facilities improvement will be very difficult since it need a lot of money from the Ministry of Finance, the Province Government and the District Government. The facilities improvement will also depend on the province and district government abilities and resources availability.

3) Policy of new teacher obligation

This policy combine the *Formulate policy to oblige new teacher to teach in the rural areas*, *Give incentive for rural areas teacher by the central government*, *Formulate good teacher mapping*, and *Formulate teacher distribution management in the province level*.

As described in section 4.1.2 that the policy formulation to oblige new teacher to teach in the rural areas may distribute the teachers to rural areas in a relative short time but it might cause the teacher profession lose its attractiveness in the future. The incentive given for rural area teachers will help to maintain its profession attractiveness so as will not bring negative implication in the long term implementation. However this policy will burden the central government monetary, the coordination with the Ministry of Finance will be hardly to succeed and finally it will be difficult to be implemented.

The good teacher mapping is needed to support this policy in a way that the mapping will help capturing which district has too many teachers and which district need more teachers; and the formulation of teacher distribution management in the province level is needed to enable teacher to move from the rural areas to the cities after they fulfill their obligation in the rural areas. This policy will need good teacher distribution management and good teacher mapping in order to able succeed the policy. The Ministry of National Education has to coordinate with the province government and the district government in order to have a good teacher distribution management. The coordination with the Education Service Agency in the province level will be coordinated by the Province Governments; meanwhile the coordination with the Education Service Agency in the district level and the schools will be coordinated by the District Governments.

4) Policy of new teacher distribution management

This policy combination is proposed as the combination of *Formulate good teacher mapping*, *Formulate teacher distribution management in province level*, and *Formulate teacher distribution management in national level*.

This policy support well-managed teacher distribution in the future by enabling teacher to move from one district to another district and from one province to another province. The teacher will be based on teacher mapping from each school. This mapping will build the district teacher mapping, then the district teacher mapping will build the province teacher mapping, and the province teacher mapping will build the national teacher mapping. In the future, the information and communication technology (ICT) should be used to help provide the national teacher mapping through online teacher database. In the future, when there is a district which cannot fulfill their need of teacher, they could look at the online database and negotiate with

the other district that has the human resource needed. Therefore, a good teacher mapping is required in this policy to map which district or region is lacking of teacher and which district or region has too many teachers.
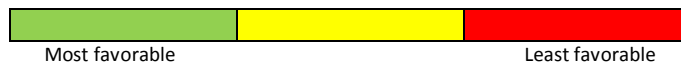
The teacher distribution management will remain under the district authority as stated in the Law no. 32/2004 on Local Governance. However with the facilitation from the province and Ministry of National Education to manage the teacher distribution, the unbalance teacher distribution is expected to be solved without requiring a lot of money.

Although this policy has good score in the financial and long term implication, and the ability to solve the problem, it has disadvantage where it might be difficult to be implemented since there might be reluctant from the teachers and the districts government. The teachers might refuse to be moved since they feel insecure to move to other district which far from their hometown. The district government may refuse because they do not want their authority to be interfered; since they have authority to manage their own teacher based on the law no. 32/2004 on Local Governance as discussed in chapter 2.

Table 8 shows the comparison of proposed policy alternatives implementation. The colors describe how favorable the outcomes are expected to be for each policy alternatives. The green color indicate the most favorable outcome, yellow as less favorable, and red as the least favorable outcome.

Table 8. Policy Alternatives Score Card for Teacher Distribution

	Policy Alternatives			
	Zero Option	Policy to attract teacher in the rural areas	Policy of new teacher obligation	Policy of new teacher distribution management
Financial implication	🟩	🟥	🟥	🟩
Long term implication	🟨	🟨	🟨	🟩
Ability to solve immediately	🟥	🟩	🟩	🟩
Implementation feasibility	🟩	🟥	🟨	🟥

Most favorable ▬▬▬▬▬▬▬▬ Least favorable

After assessing the ensemble of means proposed as the alternatives policies based on the criteria above, we recommend the combination policy of new teacher distribution management to be implemented. This policy is recognized as better solution to be implemented to balance the number of teacher in cities and in rural areas while maintaining the sufficient quantity of teacher. The good teacher mapping is formulated to support the distribution management data required and to prevent excessive teacher movement take place.

This policy will keep the teacher profession attractiveness and teacher quality so as high quality of prospective teachers will keep entering the teacher profession. This policy also considered able to

solve the teacher distribution problem in a relative short term and does not demand high budget from the central government or the district government. It should be noted that tradeoff between actors caused by their different interest cannot be neglected in the negotiation and decision making process. Therefore, in order to bring this policy into reality, the government should put it highly in their agenda. The recommendation to implement the policy will be discussed in chapter 5.

4.2. Increasing the Teacher Time for Self-study

The second problem statement is "How to improve the teacher quality without increasing their workload?" Teachers in Indonesia have high workload, especially for the preparation and the evaluation of the courses. Every teacher has to prepare the annually and daily learning implementation plan before they teach in class. After finish teaching, they have to make resume about their teaching activities. The example of these documents can be seen in Appendix G.

If we took Finland Education with its best education result as a study case, we will notice that Finland teachers only spent 570 hours per year (approximately 12 hours per week) for teaching (Spencer, 2009). The rest of their hours are used to improve their knowledge and teaching quality.

The Government Law no.74/2008 stated that every teacher should teach minimum 24 hours of teaching hour[8]. This means that they only spent 18 working hours[9] from their obligation to work 37.5 hours per week as a civil service personnel. If they need ⅓ of their teaching time to prepare and evaluate the course, they will spend 24 working hours in total for the teaching activities (Baedhowi, 2010). In conclusion they will have 13.5 working hours to improve their knowledge or do other activities, such help preparing their students to join the writing contest, debate competitions and physic Olympics.

In fact, they spent more time for the preparation and evaluation of the course. When we look at the regulation guideline for calculating the teacher workload given by Directorate General of Quality Improvement of Teachers and Educational Personnel, we can see teacher should dedicate 4 hours to prepare and evaluate for every 2 hours teaching activity. This guideline can be seen in Table 9.

The Government Law no.74/2008 which stated that every teacher should teach minimum 24 hours of teaching hour was issued in order to reduce government expenditure on teacher salary. It cannot be denied that the teacher salary claim large share of central government budget, especially after the certification program implementation, when the government has to pay teacher professional allowances as much as one time salary. In other words, the government has to pay doubled salary for the teachers. For this reason, the government tries to set a regulation to ask the teacher to work efficiently. The government considers that it is not an exaggerated matter if the government asks the teachers to work ⅓ harder but they will get doubled salary. In the future, it is expected that the number of teachers can be reduced and finally the government does not have to pay excessive number of teachers. After many teachers are retired, the government does not have to hire many new teachers and finally the government can save some money. Although there is big

---

[8] One teaching hour is 45 minutes
[9] One working hour is 60 minutes

problem occur after the Law no.74/2008 implementation as mentioned in section 2.6.3, the government still cannot easily eliminate this 24 hours teaching rule since the it is already been implemented. Moreover the changes of a 'Law' need to be coordinated and approved by the Parliament. For these reasons, the rule of 24 teaching hours is consider need to be protected in this research. Furthermore, this rule is considered as external factor in the Teacher Workload System Diagram as explained in section 4.2.1.

Nowadays, the Ministry of National Education is implementing the Continuous Professional Development (CPD). This program aimed to give opportunity to teacher to improve their knowledge and professional skill (Baedhowi, 2009). In order to reach the CPD objective, teacher should have enough time to do self-study, discuss with colleagues, and join trainings and workshops. For these reasons, we will try to analyze the alternative solution to reduce the teacher workload and increase their time to do self study and improve their knowledge.

Number	Type of Activities	Equivalence of hours per week
1	Preparing and Planning the teaching activity	2
2	Performing the teaching activity	2
	Initial activity	
	Teaching activity	
	Resume and reporting the teaching activity	
3	Evaluating and assessing the teaching activity	2
	Test assessment	
	Attitude assessment	
	Work assessment	

Table 9. Teacher Workload (Source: Directorate General of Quality Improvement of Teacher and Educational Personnel (2008))

4.2.1. Teacher Time System Boundaries

The system boundary of teacher time system is defined in system diagram in Appendix C.2. Several assumptions are made due to the system boundary. Five factors related to the teacher time system is connected to the external factors[10] and steering factors[11].

The criteria of time to improve knowledge is used as the solely criterion to measure whether the objective to have more time to improve teacher knowledge have been met or not. Six external factors and seven steering factors may affect the system. The external factors that can impact the system, namely: teacher job side availability, number of student per class, number of subject, class teaching system, number of class, and teaching time requirement. One important note should be underlined is the fact that the Ministry of National Education can affect the teaching time requirement, for example by changing the regulation that every teacher should only teach 18 teaching hours per week instead of teaching 24 hours per week. Nevertheless the Ministry wants to

---

[10]External factors are factors that cannot be influenced by the problem owner but can influence the problem system (Enserink, et al., 2009)

[11] Steering factors are instruments/means/policies that the problem owner can use to achieve a certain objective/goal (Enserink, et al., 2009)

keep this regulation, therefore the factor of teaching time requirement become an external factor which the Ministry does not want to change.

The steering factors include the policy related to the teaching system, policy related to the number of subject, policy on the number of student per class, package of questions, comprehensive teaching method, teaching tools, and teacher salary. The detailed explanation can be seen in Appendix C.2.

4.2.2. Assessment of Means to Lessen Teacher Workload

Several means to lessen teacher workload is proposed based on the means end diagram in Appendix E.2. These means are namely: raise teacher salary, formulate policy related to the teaching system, formulate policy related to the subject, develop teaching tools, develop comprehensive teaching method, formulate policy related to the number of student per class, and develop new evaluation method.

1) Raise teacher salary

    The low teacher salary results many teachers try to fulfill their needs by having side job, beside their main job as a teacher. This condition leads to less teacher quality since they will emphasis to get more money from their side job, instead of being a good teacher. Therefore teachers should acquire salary which is enough to fulfill their needs. Nowadays, the Indonesia government is committed to increase the teacher welfare. Every certified teacher will acquire professional allowances after they fulfill the requirement to teach 24 hours per week. This policy implementation is considered to be in the half way. Since every certified teacher will acquire professional allowances with amount as much as their salary, another additional teacher salary will heavily burden the central government monetary although it might raise the teacher profession attractiveness in the future. Since it will give burden to the central government monetary, the negotiation with the Ministry of Finance will be very difficult and finally it will impede its implementation feasibility.

    Nevertheless, the policy to raise the teacher salary would not able to help the Ministry of National Education to reduce the teacher workload and increase the teachers' self study time.

2) Formulate policy related to the teaching system

    The teaching system highly affects the teacher workload. Teacher A who teaches many classes in different grades will have higher workload than Teacher B who teaches many classes in the same grade. Teacher A has to make different preparation for each grade. Meanwhile Teacher B can prepare once and use it in different classes.

    A music teacher in Junior High School is an example of a teacher with high workload (Subandiyo, 2010). Music subject in Junior High School level is only given in 1 teaching hours per week. The music teacher in Junior High School I Yogyakarta has to teach 18 classes, consist of 6 classes for each grade. She has to prepare the course for three different grades. Furthermore, since one class consist of approximately 40 students then she has to assess approximately 700 students' work. In result, her workload becomes very high. In addition,

although she already teach all of the classes in her school for 18 teaching hours, she still need another 6 teaching hours from other school to fulfill her obligation of 24 teaching hours.

In contrary, a mathematics teacher will have less workload. Mathematics subject in Junior High School is given in 4 teaching hours per week (Minister of National Education, 2006). Since there are 6 classes for each grade in the Junior High School I Yogyakarta, the mathematics teacher will have less workload. He only has to prepare the course once and can be used for all classes. He only needs to assess 240 students' work.

By observing this fact, we can conclude that the teaching system will highly affect the teacher workload. Hence a policy to set the teaching system will help to control the teacher workload.

This policy will be very difficult to be set and implemented. The teaching system implementation is based on the school condition. For instance for a school with one class for each grade will no option instead of asking their teacher to teach every grade. Whilst school with several classes in each grade might have option of asking their teacher to teach only one grade. In addition, since there is a problem of uneven teacher distribution, many teachers are lack of teaching time. In result, some of these teachers will fill any vacant classes. For these reason, this policy will be difficult to set and implement.

This policy might have financial implication when it starts to be implemented. For example the school might have to hire more teachers since the teaching system is changed. However, this policy will be able to solve the problem: reduce the teacher workload and increase self study time, and might give good long term implication to the education performance in the future.

3) Formulate policy related to the number of subject

The same condition applies to teachers who teach more than one subject. They will have higher workload than teachers who only teach one subject. For example a teacher who teach economics, geographic, sociology, and history together as social science will have higher workload than a teacher who one subject of Indonesia language. Hence a policy to set the number of subject taught by one teacher will help to control the teacher workload. In the other hand, in order to give a comprehensive teaching, some subjects need to be given only by one teacher. Given the example of social science, in order to explain the market in a comprehensive way, a teacher should teach the economics, geographic, sociology, and history aspects of the market.

For this reason, although this policy enable reduce teacher workload and increase teacher's self study time, it will be difficult in its implementation and not in line with the curriculum. It might give negative long term implication to the curriculum. In addition, this policy implementation might bring financial implication, for instance the school might have to hire more teachers since one teacher may only teach one subject.

4) Develop teaching tool

The new curriculum of Education Unit Level Curriculum or Kurikulum Tingkat Satuan Pendidikan (KTSP) is designed in 2006 with main objective to give students more opportunity

to be active and creative, not only learning and reading their books but also doing more activities and experiments in their school and environment (Harianti, 2010). In consequence, many innovative learning models and teaching tools are needed to help the student to do their experiment and understand better. Nowadays we can hardly find these innovative models and tools. Teachers should prepare these models themselves and it is part of their preparation work. Facing this fact, a package of teaching models and tools need to be developed.

The teaching tool development needs to be adjusted to the school and student needs. In other words, this teaching tool cannot be developed by the central government but should be developed by the local government. The local government, especially the district government, and book publishers' participation will affect this policy success. Although the teaching tools and methods has been developed by the book publisher, teachers still have to design their teaching plan in order to achieve the goals set in the curriculum of Education Unit Level Curriculum, therefore this policy will not much reduce teachers workload. In result the teacher time to do self-study will not increased that much.

Still, this policy may bring good long term implication, since these tools will help teachers with less quality to able deliver good education to their students. In result, education materials given by good teachers and less quality teachers will not be much different and the education discrepancy in the future can be reduced.

Although this policy gives many advantages, it also has some drawbacks. Firstly, this policy implementation requires funds on its development. Secondly, the coordination between the Ministry of National Education, district government, district education service agency, book publishers and schools should be well coordinated. The Ministry of National Education as the problem owner should actually supervise the book publishers and schools on its implementation to assure the quality.

5) Develop guidebook for teachers

The education book in Indonesia is published by the Ministry of National Education through the book center and the book publishers. They usually only publish one book for each subjects which contains all materials, lesson materials and evaluation questions, for the students and the teachers. As a consequence, the teachers must find their own way to introduce and explain the subject materials in the way to tickle their students' interest. Although this may be one of the teacher's task, but a guidebook is proposed in order to standardize the introduction and explanation given by teachers. In this way, the education materials given by good teachers and less quality teachers will not be much different and the education discrepancy can be reduced resulting high quality education delivery. This policy is also considered able to reduce teacher workload and finally increase their self study time. The main goal of increasing teacher quality in the future can be achieved.

Regardless of its advantages, its financial implication and implementation feasibility cannot be neglected. This guidebook development requires funds and need good coordination between many actors. The Ministry of National Education should coordinate with the district

government and local book publishers to develop the guidebooks and maintain its quality. Meanwhile the teacher training institutions should responsible to educate and train the teachers how to use the guidebook. Whilst the school is responsible to choose which book most suits the schools need. The monitoring and evaluation from the Ministry of National Education and the district government must be strictly executed to the schools in order to prevent the nepotism and corruption may occur from the book selection process.

6) Formulate policy related to the number of student per class

The number of students will highly affect the teacher workload. The more number of students in a class, the higher the teacher workload will be. A policy to set the number of student per class will help to control the teacher workload. Less number of students will also increase the education quality delivered to the students and finally the education quality in the future may increase. However less students per class leads to higher operational cost. As consequences, this policy may be implemented but the central government should deliberate the national economic condition.

7) Develop new evaluation package

Nowadays, every teacher has to make their own evaluation to assess their student's ability. The government only makes the question framework for the final year evaluation, as known as national examination (Harianti, 2010). The daily evaluation methods and questions are designed by the teachers since it needs to be adjusted with the curriculum designed and lessons given by the teacher. In addition the evaluation should be adjusted to the school and teacher condition, for example the geographic subject evaluation needs to be adjusted to the school location and the questions quality may be adjusted to the teacher knowledge. Therefore an alternative to invoke the local book publishers to develop a set of evaluation method and questions is proposed.

One drawback of this policy implementation should be considered is that the evaluation questions and methods will be easily recognized by the next year students. When a student finished doing his/her grade, the questions in the evaluation package is given to the student. By doing this way, it would enable the next year student to know what will be the evaluation questions. However if the teacher do not give the question and evaluation package to the student, he/she will not be able to study again the subjects they have learnt in the future. The only solution is that the book publisher should develop different evaluation method and question package every year. In result, the book might have to be changed every year.

Although, this package of evaluation method is considered able to solve the teacher workload problem and may increase teacher quality in the future by increasing the teacher self study time, it requires funds on its development and schools may need to pay more to buy these evaluation packages. Moreover teachers need to be acquainted with the new evaluation methods and questions through teacher education and trainings; therefore the coordination with the teacher training institutions becomes an important and important aspect to be considered.

After looking at the advantage and disadvantage of the means, we come out with an assessment based on four criteria of *financial implication, long term implication, ability to solve the problem,* and *implementation feasibility*. These criteria already used before to assess the means to solve the teacher distribution problem. The first criterion of financial implication is used to prevent the high burden of the government monetary. The criterion of long term implication is used to assure that the policy chosen will not lessen the teacher and education quality in the future. The criterion of ability to solve the problem is used to confirm that the policy will be able to solve the teacher workload problem. The last criterion of the implementation feasibility is used to see the policy implementation possibility, based on the negotiation process difficulties and limited resources and funds to support the policy implementation.

Table 10 shows the score card of the policy means. It uses the colors to provide the comparison of policy means. The colors describe how favorable the outcome is expected to be for each policy means. The green color is the most favorable outcome, yellow as less favorable, and red as the least favorable outcome.

Table 10. Policy Means Score Card for Teacher Workload

	Policy Means						
	Raise teacher salary (1)	Teaching system policy (2)	Number of subject policy (3)	Teaching tools development (4)	Teacher guidebook development (5)	Number of student per class regulation (6)	New evaluation package development (7)
Financial implication	Red	Yellow	Yellow	Yellow	Yellow	Red	Yellow
Long term implication	Yellow	Green	Red	Green	Green	Green	Green
Ability solve the problem	Red	Green	Green	Yellow	Green	Green	Green
Implementation feasibility	Red	Red	Red	Yellow	Red	Red	Yellow

Most favorable — Least favorable
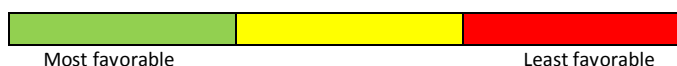
4.2.3. Evaluation of Ensemble of Means to Reduce Teacher Workload

After assessing the advantage and disadvantage of the means, we come out with some means ensemble. The ensembles combines several means to gain effective result of the policy implementation based on four criteria of *financial implication, long term implication, ability to solve the problem* and *implementation feasibility;* which are proposed as alternatives policies to solve the teacher distribution problem. After the assessment on the criteria, three favorable ensembles of means are proposed. The proposed policies are described as the following:

1) Zero Option

In zero option, no new policy means nor ensemble of means will be implemented. No policy implication is expected and no institutional adaptation is needed since the existing condition is continued. This option is considered unable solve the problem immediately because we do not

change anything, but it is feasible to be implemented. Additionally, this policy is our baseline. It becomes the reference point to compare the expected outcome after the proposed policy implementation and the current situation. This comparison will enable us to observe improvement achievement by the policy implementation.

2) Policy to control teacher workload

This ensemble of means is a policy combining the *Formulate policy related to the teaching system, Formulate policy related to the subject,* and *the Formulate policy related to the number of student per class.* This combination is proposed in order to comprehensively reduce the teacher workload so as to increase teacher self study time while maintain teacher teaching time of 24 hours.

The teacher workload can be classified into three type of workload: preparation work, teaching work, and evaluation work. This combination is intended to reduce the preparation by regulating the number of subject and teaching system; and reduce the evaluation work by regulating the number of student per class. However this policy requires a lot of money, especially when we limit the number of student per class, and it will be difficult to be implemented since every school has its different condition. The Ministry of National Education has to coordinate with the Ministry of Finance to fund its implementation; meanwhile the coordination with the schools and district government is needed to adjust the local condition and manage the additional number of teachers needed.

3) Policy of comprehensive teaching method development

This proposed policy combines the Develop innovative teaching tools, Develop guidebook for teacher, and Develop new evaluation package as a policy to develop a comprehensive teaching method. This policy aimed to comprehensively reducing teacher workload by giving them a complete set of teaching tool which is expected to help them in their teaching process. Therefore the teachers may still teach 24 hours every week but still have enough time to do their self study to improve their quality. This new teaching method is expected to reduce teacher preparation work by its guidebook and innovative teaching tool. The evaluation work is expected to be reduced by its new evaluation package. This comprehensive teaching method will consist of a book for student, a guidebook for teacher, and an evaluation package. A book for student consists of study materials used by the students in their class activities. The teacher guidebook consists of the explanation on how to do the teaching activity in class. The evaluation package consists of examination and test methods and questions used by teachers to evaluate the students. The teacher guidebook and evaluation package materials are in line with the materials in the student book but are unknown to the students. In other words, only the teacher who knows what is the content of the guideline book and evaluation package. These books and tools is given together as a comprehensive teaching tool to support the study process in class, and these books and tools are completing each other. The teaching method is expected to be used in a long term, with duration of at least 5 years, to avoid the practice of school to sell new book every year.

Another advantage can be taken from this policy is that it can help to maintain the education standard, in the way that the introduction, explanation and evaluation materials given by

teachers do not depends on the teacher knowledge. Nevertheless, this policy implementation requires some funds and good coordination between related actors to develop the methods. The Ministry of National Education must coordinate with the local book publishers and schools in the teaching method development in order to adjust the local needs and curriculum. The monitoring and evaluation should be deliberately executed by the Ministry together with the district government to prevent the abuse of authority emergence in the implementation. The conspiracy between school and book publisher may occur in the teaching method selection process. Moreover the good coordination inside the Ministry, between the Directorate General of Higher Education and the Directorate General of Basic and Secondary Education, also needs to be strengthening since the teacher training institutions becomes a very important actor to educate and train the teacher. The actors' relation will be discussed in chapter 5.

The overview of alternative policies proposed to reduce teacher workload can be seen in Table 11. This table is the score card which provides the comparison of policy alternatives implementation. The colors are used to describe how favorable the outcome is expected to be for each policy alternative, as compared to the Zero Option as the base case. The green color shows that the policy alternative outcome is the most favorable, yellow as less favorable, and red as the least favorable.

Table 11. Policy Alternatives Score Card for Teacher Workload

	Policy Alternatives		
	Zero Option	Policy to control the teacher workload	Policy of comprehensive teaching method development
Financial implication	🟩	🟥	🟨
Long term implication	🟨	🟨	🟩
Ability to solve immediately	🟥	🟩	🟩
Implementation feasibility	🟩	🟥	🟥

Most favorable   Least favorable
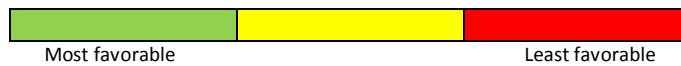
After assessing the advantage and disadvantage of the proposed means combination, we recommend to implement the policy of Comprehensive teaching method development. This policy is recognized to be better solution to help the Ministry of National Education as the problem owner to achieve its goal to reduce the teacher workload, increase self study time, and finally increase teacher competencies and quality.

This policy will also support the new curriculum of Education Unit Level Curriculum implementation. It will enable students to be active and creative and enable schools to adjust their need and condition. It will also help the teacher to prepare the course and evaluate their students. This proposed policy also reduces the tendency of teaching process quality to depend on the teacher quality. This policy is estimated not to burden the government budget since it does not require high financial support. Nevertheless we are facing a dilemma that it is not possible to

standardize the teaching process since there is a wide range of student needs caused by the different geographic, social and cultural conditions in Indonesia (Harianti, 2010). Therefore an alternative to invoke the local book publishers to develop comprehensive teaching method is proposed. When these methods and tools are developed by the book publishers and schools have authority to choose, these publishers will compete to serve their best. Finally a good quality of books and teaching methods will be obtained. Eventhough a possibility of abuse of school authority school in the teaching method selection process might occur.

4.3. Conclusion

Two policies are proposed to solve the teacher distribution and teacher workload problem. The formulation of new teacher distribution management at province level and national level is recommended to balance the number of teacher in cities and in rural areas while maintaining the sufficient quantity of teacher. Meanwhile comprehensive teaching method development is recommended to reduce the teacher workload and to increase their qualities.

The policy to manage the teacher distribution at province level and national level is considered to keep the teacher profession attractiveness in the future while being able to solve the teacher distribution problem in a relative short term and does not demand high budget from the central government or the district government and it seems feasible to be implemented. Tradeoff between actors caused by their different interest cannot be neglected in this policy negotiation and decision making process. This policy will remain the teacher distribution management in the district level but adding the facilitation from the province and Ministry of National Education to manage the teacher distribution.

The policy of comprehensive teaching method development will help teachers to do their preparation, teaching activities, and evaluation work while keep enabling schools and teachers to adjust their need and condition. This policy also reduces the tendency that teaching process quality depends on the teacher quality. This policy also does not require high financial support. Another advantage is that good quality of books and teaching methods will be obtained although a possibility of abuse of authority. A conspiracy between school and book publisher in the teaching method selection process might occur.

Chapter 5. Policy Recommendation

After analyzing the policy options in chapter 4, we will analyze implementation recommendation to solve the uneven teacher distribution and alleviate the teacher workload. The recommendation to cope the uneven teacher distribution will be elaborated in this section 5.1; meanwhile section 5.2 will deal with recommendation to increase the teacher time to do self-study.

The actor network analysis is used in this chapter as a tool to capture the involving actors and their perceptions and resources. This tool is chosen in order to help researcher to give advice of the proposed policy by mapping the actors' perceptions, resources and relations with other actors, and providing insight into the opportunities and threats that the problem owners might deal with (Enserink, et al., 2009)

5.1. Formulating the New Teacher Distribution Management

Nowadays, there is a difficulty to move teacher from one district to other district since the teacher distribution management is managed in the district level. In result, the teacher distribution problem cannot be solved immediately, whilst this problem requires a quick solution. By facilitating the teacher distribution management in higher level than the district level, such as province level or national level, it will ease the teacher move and distribution management. The further analysis related to the involving actors and the solution strategies will be elaborated in section 5.1.1 and 5.1.2.

5.1.1. Involving Actors

The Ministry of National Education as the problem owner needs to coordinate their actions with different actors in order to reach the goal of more equal teacher distribution. The role of Province Government, Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency and Ministry of Home Affairs is important to support the problem owner with the authority to facilitate the distribution management in the province and national level. The Ministry of Finance is needed to support the distribution and regulation on the teacher salary and professional allowances. The actors' interest and objective details can be found in Appendix E.1

The problem owner must negotiate the district government to agree to release their remaining authority on teacher distribution management and enable teacher to move from their district. However after we map the actors interest and objective as shown in Appendix E.1 we can see that this negotiation would be a difficult task since the district government does not want to release their remaining authority and they do not want their autonomy to be interfered by other actor (Baedhowi, 2010; Kunaefi, 2010; Suharwoto, 2010). However when this negotiation process could not reach the agreement, it will be very difficult to well distribute the teachers in Indonesia. We recommend to carefully fostering the negotiation process with the district government and the Ministry of Home Affairs. The Ministry of Home Affairs who has the authority to regulate and manage the district government leaders is expected to force the leaders to cooperate with the Ministry of National Education.

Although we consider that by putting the teacher distribution management in the province level is a better solution, but the district government will remain their existing authority based on the law

no.32/2004; therefore it is recommended to keep the teacher distribution in the district level but enable teacher move from one district to other district with the Province Government and Province Education Service Agency facilitation. Furthermore the Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency and Ministry of Home Affairs facilitate the teacher move from one province to other province or one island to other island. Nowadays these actors are only responsible to update the teacher current status data and to allocate their salary and professional allowances. In the future, these actors are expected to be able to force the teachers if they do not want to be moved by not giving their salary and professional allowances.

The cooperation with other actors as shown in Appendix E is also important to accelerate the process of teacher distribution goal reaching. The Indonesian Teacher Association as the representation of teacher aspiration is the important critical actor who needs to be convinced about the teacher distribution importance. Teachers will be willing to be moved to other region if they understand the importance. This understanding should be given through a good explanation by the problem owner, district government, and province government. The schools are also important to assure the teacher well distribution. The schools must provide the real and recent data about the teacher state data (Kumalawati, 2010). This data contains the recent number of teachers in the school, the teacher's age and who will be retired, and the projection of teacher needed in the future. Without this data, either the province government or the central government will face high difficulty to manage the teachers. This data is collected in the district level to picture the teacher resources in every district. When one district needs more teachers, this district may report to the province government so as the province government can facilitate if other district have too much teacher. Whereupon the adjacent district in the same province cannot fulfil the need, the province government may report to the Directorate General of Basic Education in the national level so as the Directorate General can facilitate if other province have too many teachers. After the teacher move is agreed by the district government and province government, the Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency and Ministry of Home Affairs will update their data as the civil service personnel and allocate their salary and professional allowances to the District Education Service Agency[12].

The teacher mapping is expected able to be accessed by the actors by ICT help. In other words, the Ministry of Information and Communication should be involved in the negotiation process. But in this research, the role of ICT is not considered to be an actor yet since the online teacher mapping is considered to be a follow up plan of the teacher distribution management. It is recommended to firstly enable the teacher movement before focusing on the online teacher database development.

In the process of negotiation and coordination, the distinction of responsibilities has to be clear. Since many actors are involved, the responsibilities may be dispersed. If there are overlaps, procrastination and negligence ca occur in the responsibilities share for one task (Levitt & Dubner, 2005).

---

[12] The District Education Service Agency is responsible to distribute the teacher salary and professional allowances.

5.1.2. Solution Strategies

Based on the actor analysis provided in section 5.1.1, we recommend the Ministry of National Education as the problem owner coordinating with the Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency to set the teacher distribution management since the teachers are part of the civil service personnel which reside under these ministries. The relation between these ministries is presented in Appendix E.1. The coordination with the Ministry of Home Affairs is needed to convince the district governments to approve the teacher movements. The coordination with the Ministry of Finance should be maintained since the teacher salary and professional allowance are provided by the Ministry of Finance.

A good teacher movement mechanism must be negotiated in detail between the problem owner with the District Government and Province Government in order to assure the well managed teacher distribution flow and procedure. The recent teacher state data must be well provided by every school and integrated in the district level in order to give the real picture of recent teacher condition.

Since the unbalance teacher distribution problem has been an urgent matter to be solved, we need a policy which able to solve this problem immediately and relative low cost. Therefore a teacher distribution management policy is recommended as the first step. In the future, policies to keep attract teacher to stay and teach in rural areas will be needed. The policy to increase the rural areas teacher profession attraction as mentioned in section 4.1.3 is recommended to be considered by the Ministry of National Education. However this policy will not be discussed further in this research. A further research on this policy needs to be conducted.

5.2. Developing a comprehensive teaching method

The new curriculum of Education Unit Level Curriculum (EULC) or Kurikulum Tingkat Satuan Pendidikan (KTSP) intent to give opportunity to schools to develop programs and curriculum based on their needs, social and culture condition (Minister of National Education, 2006). For example add more time to History subject meanwhile reducing the time for English subject[13] (Kumalawati, 2010). By After deciding what the school need and what they want to achieve, every teacher in the school should make their yearly plan and daily plan. This yearly plan is known as syllabus meanwhile the daily plan is known as learning implementation plan (LIP) or rencana pelaksanaan pembelajaran (RPP). The syllabus and LIP is designed based on the school target in the EULC and use different kind of books adjusted to their needs. In practice, many teachers copied from other source in order to make the LIP or they do not use many books as their source but adjust the book in the LIP design. Facing this fact, good monitoring and evaluation plays large role to control the teacher from not teaching based on the EULC and syllabus.

Nowadays, the education books used in Indonesia usually only consist of one book for each subject. This book is used both by the student and the teacher. The theories and the questions are compacted into one book. We could hardly find a book which is specially intended to guide the

---

[13] The history subject was only given in one teaching hour per week. Since the Tarakan City history is complex and considered important to be given, not only the national history, school need to add more teaching hour. In result, the history subject is given in two teaching hours per week (Kumalawati, 2010).

teacher in doing their teaching activity (Harianti, 2010). We recommend a set of comprehensive teaching book and tool development consist of student book, teacher book and some of the teaching aids and tools. These sets are recommended to be developed by the local book publishers in order to match the local needs. In order to implement the KTSP, schools may choose which teaching books and tools set most fit the school needs. Since there is a competition between the book publishers, good quality of teaching tools set can be assured.

The Education Unit Level Curriculum also aimed to give students more opportunity to be active and creative, not only learning and reading their books but also doing more activities and experiments in their school and environment (Harianti, 2010). For this reason, students learning hours at school are reduced, especially for the Junior High School level. In the previous curriculum students will have 36 up to 40 learning hours[14] per week. Nowadays they only have between 32 and 36 hours per week. This reduction aimed to give opportunity to the students to learn from their environment, including family or have courses outside of school, such as music or traditional dance. Therefore parents participation become very important (Alisjahbana, 2000). In fact, there are only few parents who participate in their children education and resulting only few students who use their time effectively. Most of them use these time for playing, such as playing video game or *facebooking*[15].

Several arguments comes up as the reasons. Some of their parents are busy with their work, some might consider that education is fully school's responsibility, but also it caused by some parents nescience (Kumalawati, 2010). Since many of parents in Indonesia do not have opportunity to get high education, they do not understand how to accompany thier children to study. Realizing this fact, it is proposed that the comprehensive teaching tool is also equipped with teaching guideline for parents. This guideline become more important for the parents who has children in the primary school level.

Two case studies were used in this research to understand the conception of how the comprehensive teaching method and tool can be developed. The first study case is taken from the books used in the Netherlands, namely books from *Thiememeulenhoff* publisher and *Malmberg* publisher. The second case is taken from the Science Framework for California Public Schools which is used for the teaching method in California for kindergarten level through grade twelve[16]. The case studies can be seen in Appendix F.

5.2.1. Involving Actors

The actors involved in the process of comprehensive teaching method development are laid in different spectrum based on their objectives and interests. The Ministry of National Education as the problem owner has to deal with different actors from different level of institution and groups. Analysis of the actors and difference objective and interests can be found in Appendix E.2.

---

[14] One learning hour in the Junior High School level is 40 minutes.

[15] Facebook is a social networking website where people can add people as their friends, chat and send messages to their friends, and update their personal profiles. This update aimed to notify their friends about what they feel, their activities, etc (Eldon, 2008).

[16] The grade twelve in California is considered to be students in age 17 to 18 years old. (Curriculum Development and Supplemental Materials Commission, 2004)

From Appendix E.2 we can see that the Ministry of National Education coordinates internally with Book Center and Center of the Education Curriculum to develop the teaching method and tools. The Center of Education Curriculum and Book Center could provide their expertise to develop the curriculum into daily learning implementation plans and methods. Moreover the book center may also regulate the book publishers to force them to develop the method and books.

The coordination with the Ministry of Finance should be engaged in order to have sufficient fund to develop the methods and give incentive to the book publishers. The District Education Service Agency also has power and money to support the methods development based on their local needs. Therefore the coordination with the District Education Service Agency becomes an important concern.

The book publishers might be reluctant to develop teacher guidance since the teacher guidance book will only be printed in limited numbers, if we compare with the number of students, meanwhile the book publishers want to have high value and volume of transaction for their business development (Harianti, 2010). Therefore the book center needs to set a regulation and give some incentive to book publishers who publish the special book for teachers.

Since the teachers are the users with the same interest to have less workload, they are categorized as critical actors with similar interest and objective. Before start using the books, teacher must already understand how to use the books. This knowledge and skills is given during their education and training by the teacher training institutions. So, the teacher training institution also becomes critical actor in this case.

The role of ICT is also important when we want to share the textbooks and methods to be used by teacher for free. In other words, the Ministry of Information and Communication should be engaged. However the Ministry of Information and Communication is not considered as the involving actor yet, since the process of textbooks and methods share is considered to be a further step after the teaching method is already developed by the local book publishers and already successfully used by the teachers.

One important concern that there is a possibility of abuse of authority by the school[17] as the actor who is responsible to choose which method and book they will use. The conspiracy between school and book publishers should be avoided. Therefore teachers and school committee should also be involved in the selection process. Students as the teaching objects should also be involved in the evaluation process. They could appraise whether the book suits them or not.

5.2.2. Solution Strategies

Based on the actor analysis in section 5.3.2, we recommend the Ministry of National Education to coordinate the Book Center and the Center of Education Curriculum to develop the methods and books. Later the book center may regulate and force the book publishers to develop further these methods so as there will be diverse option for school and teacher to choose which method will best suit their needs. The coordination with Ministry of Finance and District Education Service Agency is

---

[17] The head master or school principal is considered to be part of the school management. In further called as 'school'.

important to force the local book publishers to develop the good quality methods and books which suit the local needs.

The teacher training institutions are critical actors to educate the teachers with different type of teaching methods and tools. Meanwhile schools, teachers, school committee and students are the actors who have the right to choose the most appropriate methods to be used in their teaching and learning activities. The monitoring and evaluation activities should be performed by the District Education Service Agency by involving school committee, students, teachers and schools.

5.3. Conclusion

Two policy recommendations are proposed in order to solve the problems as stated in chapter 4. The first recommendation is to formulate the teacher distribution facilitation at the province level and the national level will help to answer the problem statement of "How can we balance the number of teacher in the rural areas and the cities while maintaining the sufficient quantity of teacher?" Meanwhile the second recommendation of a comprehensive teaching method development is propose to answer the problem statement of "How to improve the teacher quality without increasing their workload?".

To formulate the teacher distribution management, it is recommended to keep the teacher distribution in the district level but enable teacher to move from one district to other district with the Province Government facilitation. In the national level, the teacher movement will be facilitated by the Ministry of National Education, Ministry of State Apparatus Empowerment and Reform Bureaucracy, and the National Civil Service Agency. Therefore, the Ministry of National Education needs to coordinate with the District Government, Province Government, Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency, Ministry of Home Affairs, and Ministry of Finance. The Indonesian Teacher Association, the schools and the community should also be engaged to give understanding to the teacher about the teacher movement importance so as to reduce teacher reluctance when they are moved from one school to other school. One important consideration can not be neglected is that the distinction of responsibilities has to be clear. Since many actors are involved, the responsibilities may be overlaps and negligence can easily occur.

The comprehensive teaching method development should be performed by the Ministry of National Education together with the Ministry of Finance, local book publishers and district education service agency. The Ministry of National Education has to coordinate internally the book center and the center of education curriculum in the process of teaching methods guideline development to guide the book publishers to develop the books. The Ministry of National Education should oblige the teacher training institutions to educate teachers on and arrange internships how to use these teaching methods. The engagement with the school committee become important in order to monitor and prevent the abuse of authority issue, since a conspiracy between school and book publishers might occur during the teaching method selection process.

Chapter 6. Exploring the Uncertainties

The teacher quality problem, especially the teacher distribution and workload problem, is complex and has many uncertainties in the future. Therefore the solution to solve the problem should consider the uncertainties and many different plausible futures regarding this case so as to make the policies implemented are robust through different plausible futures (Kwakkel, Walker, & Wijnen, 2008). From our current perspective there are number of factors which influence the teacher distribution and workload but lie outside the problem owner's control. These factors referred as external factors as shown in the system diagram (See Appendix C.1 and C.2). Some of these factors are relatively predictable but some are less predictable and have high impact to the system. The mass number of teacher retirement is an example of the factors which are relatively predictable. In this case, it is predicted that the number of teacher retired in 2014 will be 200,000 teachers. By 2020, this number will increase up to 400,000. Although there will be a mass teacher retirement which might influence the system internally, the mass teacher retirement is considered to be relatively predictable, not as an external factor which lie outside the problem owner's control. Thus, this factor will not be discussed in this chapter.

Scenario logic is used in this research to analyze the uncertainties impacting the system. After we determine the key question, problem exploration and proposed policy in chapter 4 and 5, we will determine the driving forces and arrange the factors according to importance and uncertainty level in this chapter. Then the scenario logic and the scenario details will be designed (Enserink, et al., 2009).

This chapter is dedicated to explore the uncertainties by analyzing the driving forces impact to the teacher quality system. We will discuss the uncertainties related to teacher distribution and teacher workload in section 6.1. Section 6.2 presents the scenario stories meanwhile the policy evaluation based on the scenario stories is presented in section 6.3. Section 6.4 and 6.5 discuss the policy failure prevention and its contingency plans.

6.1. Teacher Quality System Uncertainties Exploration

The key question or the problem definition is determined by defining the gap between desired and existing situation. As discusses in chapter 3, there are two subsystems related to the teacher quality system: teacher distribution subsystem and teacher workload subsystem. These different subsystems lead to two different problems with two different proposed solutions. As defined in chapter 4, the key questions are formulated as "How can we balance the number of teacher in the rural areas and the cities while maintaining the sufficient quantity of teacher?" and "How to improve the teacher quality without increasing their workload?" The proposed policy is to formulate the teacher distribution in the province level and the national level to solve the teacher distribution problem; whereas the comprehensive teaching method development is proposed to solve the teacher workload problem.

Referring to the system diagrams of teacher distribution and teacher workload in Appendix C.1 and C.2, we identified nine external factors that lie outside the problem owner control and have influence on the subsystems. These uncertainties are classified based on their uncertainties and impact on the chosen solutions. In order to assess the robustness of both proposed policies, we

need to find the linkage between two subsystems because not every factor is closely related to both subsystems. Therefore a higher level system is used to perform the analysis. In this case, the slice part of the teacher distribution and workload subsystem is used. The illustration of the system layer is shown in Figure 12.
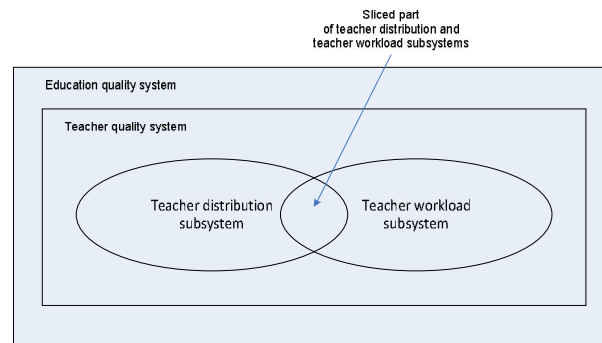

Figure 12. Layers of Education System in Indonesia

For this reason, only four factors are considered relevant to both subsystems: Number of teacher leave their job, Facilities in cities, Social factor, and Teacher job side availability. The other factors are considered not closely related to both subsystems. The factors of number of student per class, number of subject, class teaching system, number of class, and teaching time requirement are closely related to the teacher workload subsystem but not relevant to the teacher distribution subsystem.

6.1.1. Assessing the External Factors and its Driving Forces

The four external factors of Number of teacher leave their job, Facilities in cities, Social factor, and Teacher job side availability will be described as follows:

The number of teachers leave their job

The number of teachers that leave their job depends on the number of retired teachers, change professions, or leave to assume administrative duties. Although the number of retired teacher can be predicted through good teacher mapping, the number of teachers who change professions or leave to assume administrative duties is uncertain.

In Indonesia, a teacher will retire in their age of 60 (Republic-of-Indonesia, 2005). Through the teacher mapping, we can see how many teachers are assumed to retire by looking at the number of teacher with age 55 years or more. Teachers who change their professions are teachers who leave their job to other job instead of teaching such as industries or businesses sector; meanwhile the teachers leave to assume administrative duties are teachers who are being promoted at the district administrative office, promoted as a head masters, assigned new position in the Ministry of National Education or UNESCO, etc. These numbers will influence the number of teachers needed to be recruited in the cities as well as in the rural areas. When the number of teacher leave their job in the city which has too many teachers, then the district government in the cities does not have to move their teachers to other district. On the other hand, when the number of teacher leave their job in the rural areas which already lack of teacher number, then the district government in the rural areas will have to recruit even more than before. Furthermore when the

human resources in that rural area are limited, then the district government in the rural area will has to ask for other teachers from other districts or provinces in order to fulfill the teacher post needed.

The number of teacher who change their professions into industries and business sector depends on the number of job opportunity in these sectors. These job opportunities depend on the Indonesia economic situation and its economic growth. Hence the Indonesia economic growth is the driving force of the factor of number of teacher leaves their job.

Facilities in cities

In this case, the terms of "facilities" refers to the facilities of healthcare, education, electricity, transportation and pleasure attractions. The well developed facilities needs to be planned very carefully in an integrated project management plan which takes a long time. Moreover the facilities in cities development depend on the local government – the district government and the province government – capabilities and resources to develop their infrastructures. In addition, the better condition of facilities in cities and the poor condition of facilities in rural areas is one of the reasons of high attractiveness of teacher profession in cities.

The facilities development in the cities and rural areas depends on the local government capabilities and resources. These local capabilities and resources are influenced by the economic growth and the political stability in the region and in Indonesia. Therefore the economic growth and political stability are the driving forces of facilities in cities.

Social factor

Indonesia is a collectivist society, where children grow up in Indonesia will learn to think of themselves as part of a group (Hofstede & Hofstede, 2005).In general, Indonesian will choose to move to other region to follow their parents, husband, or their children although they have to resign from their job. For example, a female teacher will follow her husband and move to other region; or a teacher moves to other region since their parents are old and nobody may take care of them (Andayani, 2010). The social factor may also give impact to teacher reluctant to be moved from one region to other region. Since they think themselves as part of the community where they grow up, they might be unwilling to move since they want to stay in their hometown and do not want to be far from their society. There is also a fear, especially for rural areas people, to move to other region far from their hometown.

The globalization may influence the Indonesian way of living. The information availability may cause people not to be afraid to move to other cities since they acquire enough information and their society bond is gradually faded. Furthermore the new lifestyle from globalization may lead people to be consumptive and live in luxurious way. This lifestyle requires lots of money. Finally people will need to able to gain a lot of money. Facing people's assumption that they will gain more money by working in the cities, people will be attracted to the cities. In fact, many people choose to leave their hometown in order to gain more money and fulfill their pleasure. In conclusion, the globalization is one of the driving forces in the teacher quality system.

Teacher job side availability

The Indonesia economic situation will influence the job availability in the country, and can be translated into teacher job side availability. Teachers who feel deprived will find another job, besides teaching, in order to increase their income to fulfill their basic needs. Although the government has initiative to increase their income by giving the professional allowances to certified teachers, some of these teachers may choose to still keep their job side. In general, when the job availability in Indonesia is limited, fewer teachers will have teacher job side. In result, teacher will focus on their teaching duty.

As discussed before that the Indonesia economic situation influenced teacher job side availability. Henceforth the Indonesia economic situation becomes the driving force of the teacher job side availability.

As mentioned above, there are four external factors influencing the systems of teacher distribution and teacher workload. When we look at the higher perspective, as discussed above, we can find three driving forces, namely: (1) Indonesia economic growth, (2) Political stability, and (3) Globalization. These driving forces could either increase or decrease which lead to scenario stories. These factors can be presented by three axis of uncertainty as shown in Figure 13.
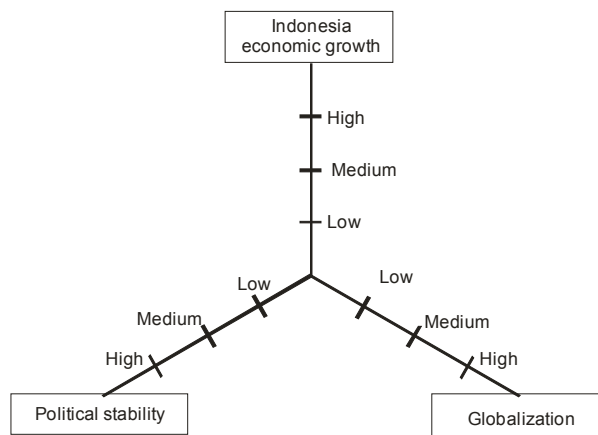

Figure 13. Dimensions of Driving Forces

6.2. Exploring the Scenario Story

The scenario logics based on the driving forces as the axis are shown in Figure 14. Then the scenario details are elaborated in the form of a story. The story is written based on the future situation, looking back on how it is originated from the past.
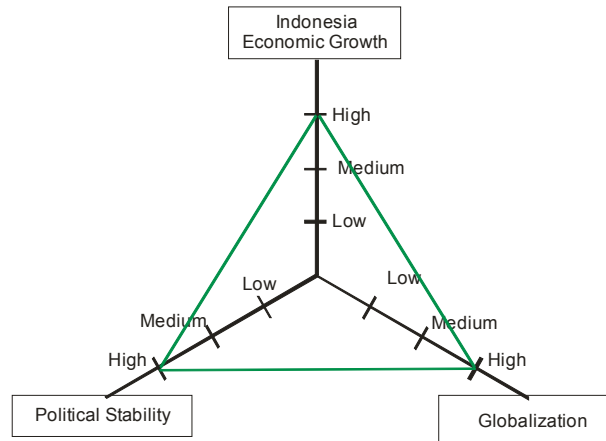
"Teacher Paradise" scenario

Figure 14. Scenario Logic "Teacher Paradise"

In 2025, the high economic growth in Indonesia supports the Indonesian government to continuously improve the teacher quality in Indonesia. The government continues to pay the professional allowances which are given to certified teachers. This policy leads to high teacher profession attraction and many highly qualified young generations are attracted to be teachers. Current teachers do not want to leave their remaining job as teacher.

Indonesia teacher quality is increasing after the certification policy implementation. The high economic growth supports this policy. The government is able to continue paying teacher salary and professional allowances to all certified teacher. Teacher becomes professional and only teaches one subject. As the government has enough money to develop the education system, the number of student per class is reduced and teachers teach less class. As result, teacher profession attraction increased and high qualified teachers are recruited and professional teachers are educated by the teacher training institutions.

After its long process of negotiation and regulation set up, the comprehensive teaching method research and development starts in 2015. In 2020, the comprehensive teaching method starts to be implemented. The Teacher Training Institutions starts to educate the new teachers on how to use different methods developed by the book publishers; the Ministry of National Education through the Center of the Education Curriculum train teachers on how to use the new methods; the District Education Agency also starts to socialize the use of the new methods in schools. In 2025, the local book publishers have been successful in the methods and book development, the teachers are familiar with the methods, and the school can choose the methods based on their local needs. Although the comprehensive teaching method development enable teacher to teach more than one class and more than one subject without excessively burdening teacher with high workload, teachers are still required to be professional and only teach one subject.

The comprehensive teaching method development helps teacher to reduce their workload and they have more time to do self-study. The teacher quality is continuously improving. The human resources are predicted able to compete in the international competition in the future and higher economic growth is expected to be achieved.

After its 5 years negotiation, the political stability brings through the new teacher distribution management implementation in 2015. This policy implementation helps to balance the teacher number in cities and rural areas. Moreover the globalization has changed the Indonesian people culture and way of living. High social factor lessen gradually overtime. People are not afraid to move to other cities since they acquire enough information and their society bond is gradually faded. This condition supports the teacher distribution policy where might ask teacher in one island to move to other island. In result, teacher distribution policy in the provincial and national level in order to move teacher from one region to other region can be successfully implemented. In 2020, we can hardly find an excess number of teachers in cities or lack of teacher in rural areas.
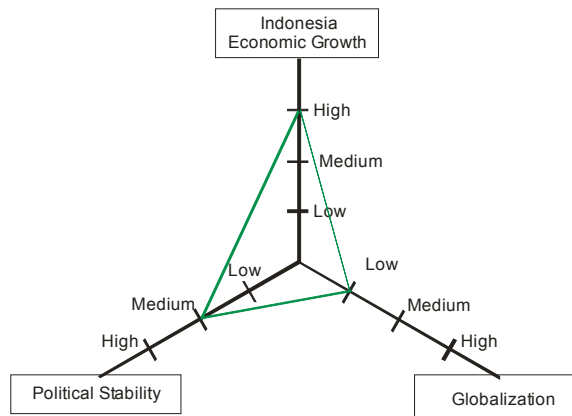
"Teacher Triumph Collapse" scenario

Figure 15. Scenario Logic "Teacher Triumph Collapse"

In 2015, the high economic growth in Indonesia encourages industries development. Many new investors invest their capital in Indonesia and many new industries and manufactures built and start their productivities. It is not deniable that the infrastructures in cities are better than the infrastructures in the rural area; therefore new investors build their new industries near the cities in order to get easier access to the infrastructure and facilities. People tend to move to the cities in order to get promising jobs in the industries.

Up to 2020, the comprehensive teaching method is still not developed yet. In result, teacher high workload remains and not yet solved. Since working as a teacher demand high workload and requires teachers to always update their knowledge, they prefer to work in the industries which have less workload but give the same amount of income. In the same time, female teachers follow their husband and move to the cities with reasons that their husbands are finding new jobs in the cities. In this case, high numbers of teachers leave their job as teacher and many new teachers need to be recruited.

The law no 32/2004 on autonomy causes disparities between rich and poor regions more significant (Aritenang, 2008). Development is concentrated only in several rich regions. This development forces people; including teachers, to move to big cities in rich regions which have better facilities and better education quality. This condition gives no incentive to new teachers to teach in the rural areas. In addition, people are afraid to be moved to other region because they do not get sufficient information about other region. The globalization does not bring high impact and

their society bond is also still high. This condition causes the whole family to move in order to follow their father when their father has to move to big cities to get a job. Finally it will increase the number of teacher, especially female teacher, who move from rural areas to cities.

The unstable political situation influences the teacher distribution management formulation. Up to 2015, the negotiation on teacher distribution management has not reached the agreement. As a consequence, in 2025 we can find excess number of teacher in many cities meanwhile there are many cases of shortage teacher number in rural areas. As people continuously move to cities and leave their job as teacher, meanwhile no action to distribute the teacher and reduce the teacher workload, rural areas face severe shortage of teacher and teacher quality will decrease in 2025. Further impact will occur when the economy growth in the future also decreasing since less quality human resources available which caused by low education quality.

"Attractive Teacher Profession" scenario
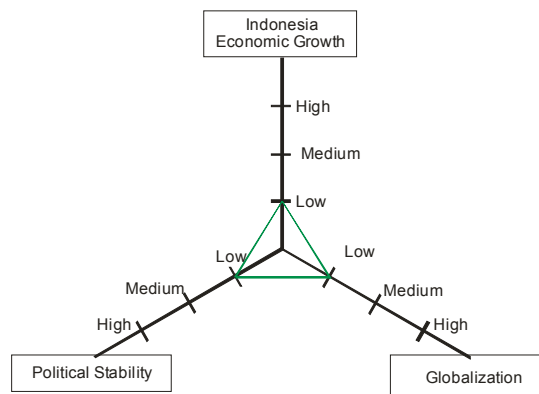
Figure 16. Scenario Logic "Attractive Teacher Profession"

Due to heavy monetary crisis hit the Indonesia economy in 2020, industries went bankrupt and people lost their jobs. Teacher profession becomes more attractive. It is one of promising jobs where people are not easy to get fired since teacher as civil service personnel is hired and paid by the central government. Moreover, since the heavy monetary crisis hit Indonesia, people realized that education is very important if they want to be able to play the role in the globalization era instead of be rolled. Teacher becomes very respectful in Indonesia. This fact leads to higher teacher profession attraction. The high teacher profession attraction attracts people to be a teacher although they realize that they will have to work hard. Therefore the teaching method development might not be an urgent policy. By not implementing the teaching method, the government may able to save some budget.

Indonesia ran out of budget caused by the heavy monetary crisis. The government is unable to develop the education facilities and improve the education quality in the rural areas. In result, people move to big cities with expectations that their children will get better education in the cities and many children also move to cities to follow their parents finding jobs in cities; resulting many students and teachers tend to move to big cities. But since the teacher distribution management starts to be implemented in 2015, teacher distribution between cities and rural areas is balanced in

2020. Although there is a big movement to cities from rural areas, the number of teacher in rural areas is not severe shortage.

6.3. Policy evaluation based on the Scenarios Story

From the scenario story of "teacher paradise" in section 6.2 we can see that the high economic growth supports the Indonesian government to continue paying the teacher salary and professional allowances. Moreover the comprehensive teaching method development which helps teacher to reduce their workload can attract teacher to keep their profession as a teacher. As a result, people are attracted to be teacher and they are willing to improve the quality. Additionally the teacher distribution management in province and national level can help to balance the number of teacher in the rural areas and in the cities. This condition is the "perfect world" that we want to achieve.

If the comprehensive teaching method is not developed, teachers will have high workload as in the current situation. When there is a more attractive job available which offer high salary with lower workload, teachers will prefer to choose these private sector jobs as pictured in scenario story of "teacher triumph collapse". Then Indonesia will be lacking of good qualified teacher in the future. Moreover when the high economic growth and good political stability lead teachers to leave their teacher profession and many teachers prefer to move to the cities, meanwhile the negotiation of a new teacher distribution management has failed, rural areas will suffer from teacher number lacking and low teacher quality.

If the negotiation between the local governments, the central government and other stakeholders involved in the teacher distribution management policy has not reached an agreement up to 2020, there is still a difficulty to move teachers from one district to the other district. As a consequence, only few teachers are willing to teach in the rural areas. Looking at the facts that only few teachers teach in rural areas and many teachers move to the cities as depicted in "teacher triumph collapse" story; the condition of teacher distribution in Indonesia becomes worst. More and more teachers are teaching in the cities that result teachers in cities cannot fulfill their mandatory teaching hours. Meanwhile schools in rural areas are dealing with teacher severe shortage problem.

But when the teacher profession attraction is already very high, as presented in "attractive teacher profession" scenario story, the comprehensive teaching method development might not be an urgent policy to be implemented. People with high qualification will also be attracted to be a teacher and people will compete to keep their job as teacher by improving their knowledge. In the other hand, the policy to balance the teacher distribution in cities and rural areas become more important. Otherwise, the rural areas will suffer from severe shortage teacher number meanwhile too many teachers are teaching in cities.

In summary, the policy to balance the teacher distribution in cities and rural areas by formulating the teacher distribution management at the Province and National level is robust in the three scenario presented in this chapter: Teacher Paradise, Teacher Triumph Collapse, and Attractive Teacher Profession. Meanwhile the policy to develop the comprehensive teaching method might be vulnerable in "Attractive Teacher Profession" scenario. Therefore several additional measures should be taken in order to prevent the policy failure. The policy failure prevention and its

contingency plan design is elaborated in section 6.4 and 6.5. The policy robustness in different scenarios is summarized in Table 12.

Table 12. Policy urgency in different scenario

	Scenario "Teacher Paradise"	Scenario "Teacher Triumph Collapse"	Scenario "Attractive Teacher Profession"
Teacher Distribution Management at the Province and National Level	√	√	√
Comprehensive Teaching Method Development	√	√	X

6.4. Assessment on obstacles occurrence and its policy failure prevention

There are several obstacles that may occur during the policy implementation. Even though the teacher distribution management at the provincial and national level has been implemented, teachers cannot be properly distributed without good teacher mapping. Nowadays, after the implementation of law no 32/2004 on autonomy, there are several new administrative regions that do not have data on teacher, include the teacher mapping (Baedhowi, 2010). There is a possibility that these regions still do not have a teacher mapping when the teacher distribution management implementation starts. Additionally the regions with teacher mapping might also face problems. When there are data errors in number of schools in their region, then the teacher mapping will not be accurate. Another possibility is when the Education Service Agency in the district level make mistake on reading the data, the Agency might ask wrong teacher to the provincial government or the national government (Kumalawati, 2010). In order to prevent this failure, a good teacher mapping and well management performance should be a concern. The socialization of teacher mapping program should be started before the teacher distribution management implementation starts. The civil servants who work for the teacher distribution management should be well trained and have high motivation in providing good services.

The comprehensive teaching method is developed with an objective to lessen the teacher workload and increase teacher time to do self study in order to improve teacher quality, but this objective will not be reached without high teacher motivation to do self study. Nowadays, teachers motivation to do self study is very low, especially teachers in the rural areas (Wahab, 2010). There is a possibility that they will use their time to do their side job or do nothing. Therefore school superintendent should be empowered and teacher motivation should be improved. School superintendent should be able to give punishment to teachers who do not show good performance and give reward to good teachers. The superintendents also should fulfill the requirement, be trained and have high motivation to be professional. Gultom (2010) recommends a continuous evaluation for teachers where teachers will be evaluated and tested for their ability in order to force teacher to keep studying and reading. This is a big challenge for Indonesia since it will need high expenses.

6.5. Designing the Contingency Plans

After we evaluated the policy in section 6.3 and analyzed the obstacles which might hamper the policy success in section 6.4, we will try to study what information should be monitored to increase

the policy robustness. The Ministry of National Education has to keep the information monitored during its negotiation process and implementation. Once an indication is recognized, an action should be taken based on its indication.

When the economic growth is faster than its prediction and many new industries are developed, the Ministry of National Government has to force the teacher distribution management negotiation and accelerate the comprehensive teaching method development. Otherwise, teachers tend to teach in cities and teachers will leave their job as teacher and move to the industrial sectors since being a teacher require high workload. In case of too many teacher leave their job, the Ministry of National Education should start to raise the teacher salary in order to increase teacher profession attraction.

In case of the declining economic growth and teacher profession is very attractive; the comprehensive teaching method development might not be a robust policy. In this case, the Ministry of National Education should reassess this policy. However the Ministry should keep in mind that the teacher quality must still be improved, therefore a policy to fire unqualified teacher and hire new teachers with higher qualification may be an incentive for teachers to improve their knowledge.

Chapter 7. Conclusion and Recommendation

This research objective is to evaluate whether the current teacher condition in Indonesia has fulfilled the UNESCO criteria and to look into the factors influencing this achievement. After the problem was explored, the research aimed to give recommendations to improve the teacher quality by providing answers to the research questions:

1) To what extent has the Indonesia government met the teacher quality for UNESCO?
2) What factors influence the criteria that have (not) met the goal?
3) What role can the Ministry of National Education put to support the Indonesian government to improve the teacher quality in a more effective way?

This last chapter summarizes the research in three sections. The first section is dedicated to answer the first and second research questions by reflecting the evaluation of Teachers in Indonesia based on UNESCO and Indonesia government criteria, also describe the current teacher condition and its problem. The second section provides the answer to the third research question of the Ministry of National Education role by summarizing the proposed policy and some recommendations. The last section reflects notes of the limitation of this research and some recommendations for further research.

7.1. Indonesia Teacher Condition Evaluation

Task Force on Teacher for EFA (TFTA) which resides under the UNESCO developed a tool to capture the teacher quality and gap in the world. This tool consists of 6 indicators. Based on these criteria, Indonesia is considered to fulfill the number of teacher needed and has good policies related to teacher quality improvement. The gender balance in teaching profession is also fulfilled. However Indonesia still has to increase the student survival rate, lower the student repetition rate, and has to train and recruit many teachers. Indonesia is categorized as a country with the moderate level of achievement.

The Indonesian Government also set 5 criteria to assess the teacher condition in Indonesia. Based on these criteria, Indonesia stated that although there is sufficient number of teachers in Indonesia, we can find shortage of teacher number and quality problem in many areas, especially in the rural areas. Moreover although Indonesia has achieved the gender balance, there are still gender disparities in the teacher qualification since there are more male teachers who hold the undergraduate degree. In addition, Indonesia still has a big task to improve the teacher quality. In 2009, as there are still 75.9% primary school teachers and 26.04% junior high school teachers who do not possess undergraduate degree, and 86.68% of teachers who do not hold certification yet.

When we look deeper to the Indonesia teacher condition and compare the assessment based on TFTE UNESCO criteria and Indonesian Government criteria, we can capture a different conclusion. Based on the UNESCO criteria, Indonesia fulfilled the teacher number needed. This finding is true but the unbalanced teacher distribution leads to shortage number of teachers in many areas, especially the rural areas. The other different conclusion is related to the gender balance. The UNESCO criteria conclude that the gender balance in teaching profession has been achieved. This

conclusion is also true but when we look at the number of male and female teacher who hold undergraduate degree, we can see the gender disparities. Another different conclusion addressed is related to the teacher quality improvement policy. We find a problem in the certification policy to improve the teacher quality. This policy is good in its implementation; however problems occur after a teacher is certified. Many teachers cannot acquire their professional allowances because they cannot fulfill their obligation to teach 24 hours.

We can see that Indonesia still has a big task to improve the teacher quality and solve the problems which may hamper the teacher quality improvement. The latter problem is captured using the causal relation diagram and based on the interviews to the related actors. Based on these analyses, we can conclude that there are two big problems in the teacher quality system: (1) the unbalance teacher distribution between cities and rural areas and (2) the high teacher workload. These problems influence the teacher quality improvement. The unbalance teacher number hampers teachers to fulfill their obligation to teach 24 hours per week. Meanwhile the high teacher workload limits teacher self-study time. Teachers should have sufficient self-study time in order to improve their knowledge.

7.2. Strategies in Teacher Quality Improvement

After determining the problems, two questions remain: (1) *How can we balance the number of teachers in the rural areas and the cities while maintaining the sufficient quantity of teacher?* and (2) *How to improve the teacher quality without increasing their workload?*. Based on the policy analysis using the system diagram, means ends diagram, and actor network analysis; the formulation of a new teacher distribution management policy at province and national level is recommended to balance the number of teacher in the rural areas and the cities. Meanwhile comprehensive teaching method development is recommended to reduce the teacher workload and to increase their quality. Lastly, the proposed policy robustness is tested using a scenario analysis.

The new teacher distribution management will remain the district government authority to manage their teachers, but enable teacher move from one district to other district with the Province Government facilitation and enable teacher move from one province to other province with the Ministry of National Education facilitation. The teacher movement will be based on the district needs which captured from the teacher mapping. The teacher mapping will be mapped based on each school condition.

The policy to facilitate the teacher distribution management at province level and national level is proposed because it is considered to keep the teacher profession attractiveness in the future while being able to solve the teacher distribution problem in a relative short term. This policy does not demand high budget from the central government or the district government and it seems feasible to be implemented. Tradeoff between actors caused by their different interest cannot be neglected in this policy negotiation and decision making process.

To formulate the teacher distribution management policy, the Ministry of National Education needs to coordinate with the District Government, Province Government, Ministry of State Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency, Ministry of

Home Affairs, and Ministry of Finance. The Indonesian Teacher Association, the schools and the community is recommended to be engaged to give understanding to the teacher about the teacher movement importance so as to reduce teacher reluctance when they are moved from one school to other school. One important consideration which can not be neglected is that the distinction of responsibilities has to be clear. Since many actors are involved, the responsibilities may be dispersed. Responsibilities overlaps, procrastination and negligence can easily occur.

The second recommendation is to develop a comprehensive teaching method to reduce the teacher workload. This policy is proposed because it is considered to help teachers to do their preparation, teaching activities, and evaluation work while enabling schools and teachers to adjust the school and students need and condition. This policy also reduces the tendency that the teaching process quality depends on the individual teacher quality and it does not require high financial support. Another advantage is that good quality of books and teaching methods will be obtained.

In order to develop the comprehensive teaching method, the Ministry of National Education is recommended to work together with the Ministry of Finance, local book publishers and district education service agency. The Ministry of National Education has to coordinate internally the book center and the center of education curriculum in the process of teaching methods guideline development to guide the book publishers to develop the books. The Ministry of National Education should oblige the teacher training institutions to set a new curriculum where the internship and how to use the teaching methods becomes part of the curriculum. The engagement with the school committee is recommended to monitor and prevent the abuse of authority issue cause by conspiracy between school and book publishers in the teaching method selection process.

7.3. Research Reflection

In this research, the teacher quality system is studied in detail. Since this research is done in a limited timeframe and with a limited access to information, the data might not represent the whole condition in Indonesia. The data is mainly obtained from the actors residing in the Java Island, although there are actors who come from the North Sumatra, Sumatra Island and Tarakan Region, Kalimantan Island. The interviewed teachers are also mainly residing in Yogyakarta city, although there are two teachers who reside in rural areas in East Java: Mojokerto district and Situbondo district. If the sufficient number of actors interviewed can be obtained, this research might be more credible and accurate, enabling the statistical analysis between regions. It would also be interesting to model the teacher quality system using the system dynamic modeling to analyze which factor give greater influence and might be a proposed policy.

Although researcher can only interview limited number of actors, the access to information is sufficient. The report documents from UNESCO and Ministry of National Education can be obtained. Moreover the different actor's perspective can be captured since the researcher able to interview different related actors from different background: the UNESCO perspective, the Ministry of National Education perspective, the Local Government perspective, the Teacher Training Institutions perspective, and teachers' perspective. One advantage may taken by researcher is the fact that researcher is an independent researcher who is not hired by UNESCO or Ministry of National Education. This fact may help researcher to be more objective in the analysis.

Since teacher quality criteria are very important to evaluate the current teacher condition, it is strongly recommended the future research to assess the teacher quality criteria. In this research, researcher use sets of criteria from the Task Force on Teacher for EFA (TFTA) and Indonesian Government to evaluate the teacher condition in Indonesia. As described in this research, the criteria from TFTA might not be able to assess the real condition of the Indonesia teacher condition. It only able to capture the teacher condition in Indonesia from the high aggregation level, but it cannot see what the problems existing under the national level. Meanwhile the Indonesian Government criteria of number of teacher hold undergraduate degree and number of certified teacher might not reflect the real teacher quality. Although these criteria is expected able to capture teachers' education level and teachers' experiences, but it is considered that actors may behave strategically by manipulating the scores to ease the teacher education process and certification process. Based on these facts, a further research on teacher quality criteria is needed. The criteria have to be able to quantify the current teacher quality and able to capture the real teacher problem.

Before carrying out the proposed policy, it is recommended to assess the implementation methods in advance by having several studies: Decision Making Process and Institutional Implementation studies. Although the policy recommendation proposed in this research seems able to be implemented, but the implementation will face a big challenge. The large number of parties involved will complicate the negotiation and decision process. Moreover since the task and responsibilities division between actors is not clear, a further research on the mechanism coordination and decision making process for the policy implementation is recommended. The distinction of task and responsibilities between involved actors should be clear in order to prevent responsibilities overlaps, procrastination and negligence. A further research on the comprehensive teaching method content, the teacher education curriculum and internship program is also recommended to be investigated.

The actor network analysis used in this research is considered might not able to provide all information related to the actors perceptions, values and resources, since these information are not easily to be obtained. Only limited information related can be obtained from the interviews and available written documents. Within the limited information, researcher has to estimate the perceptions, resources and relation with other actors. Additionally, since Indonesia is being intensively reforming its institutional bureaucracy, the actor network analysis needs to be always updated in order to adjust the recent condition.

Although the means-end diagram used in this research as a tool to helps the researcher to capture the possible means to solve the problem, this tool cannot help researcher to see the possible consequences that might arise when the problem owner implement the means. Moreover this tool cannot help the researcher to assess whether the means can only stand alone, easily combine, or has to be combine with other means in its implementation; for instance the means of Formulate good teacher mapping (as shown in Appendix D.1) which can only be implemented together with other means.

APPENDIX A. CAUSAL RELATION DIAGRAM

This appendix presents the causal relation diagram of the teacher quality system as shown in Figure A 1

Three subsystems were set to help us capture the system in a better way in a sense of not very large and complicated. These subsystems are the teacher quality subsystems, teacher quantity subsystems, and teacher workload and number of teacher needed, as shown in Figure A 2, Figure A 3, and Figure A 4 respectively.
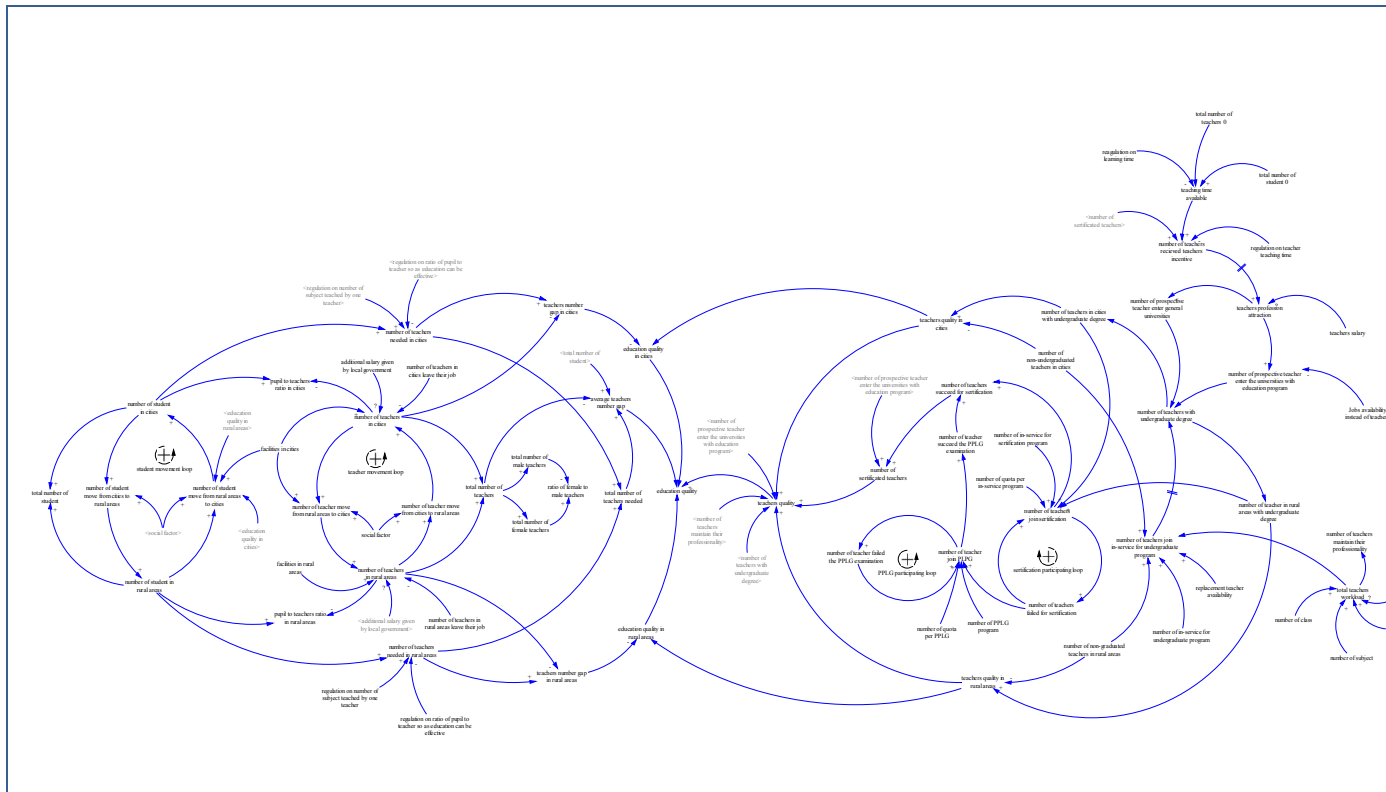
Figure A 1. Teacher Quality System

A.1. Teacher Quality Subsystem
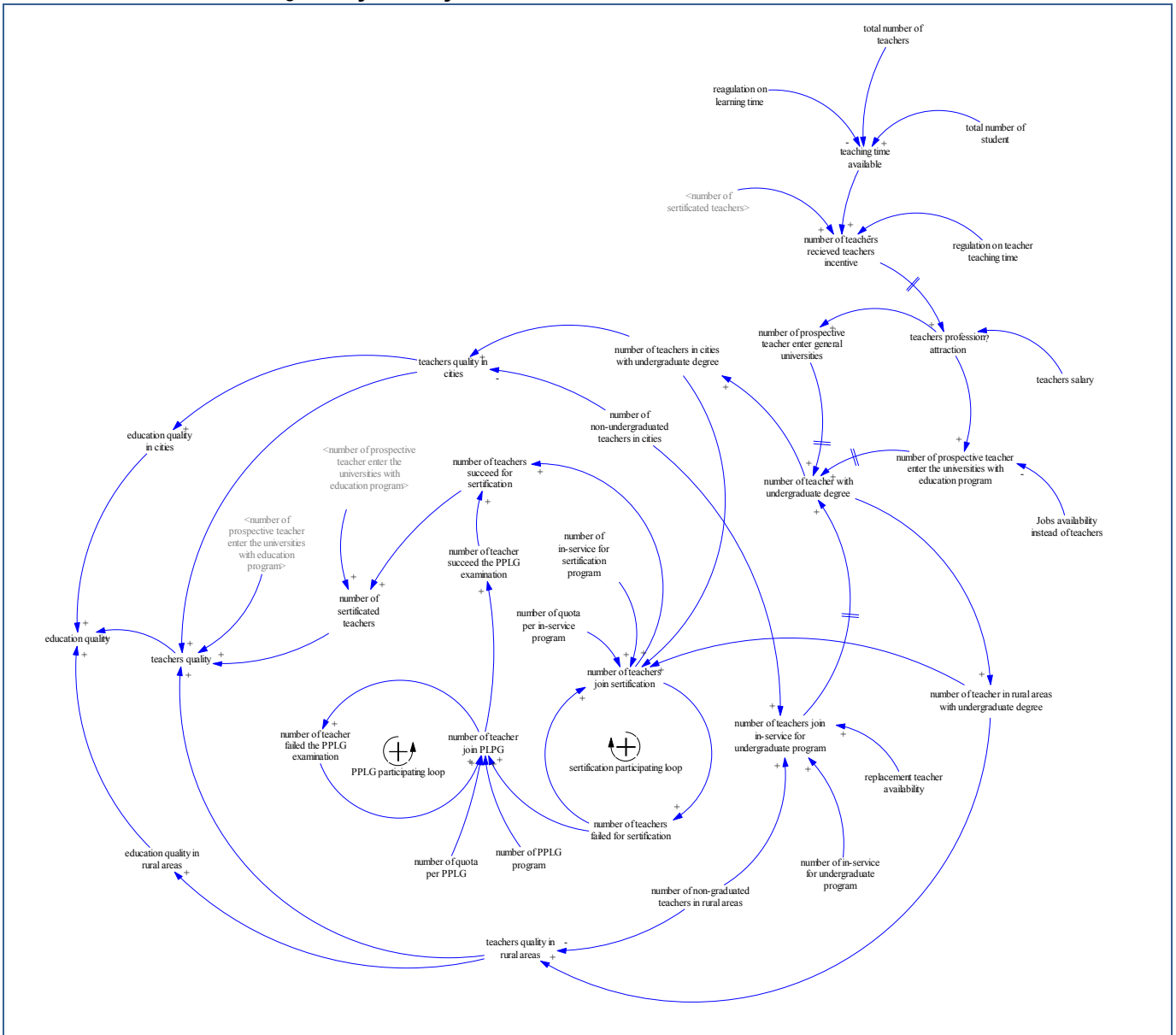
Figure A 2. Teacher Quality Subsystem

From the CRD in Figure A 2, we can see that *number of undergraduate teachers* can be increased by two factors, i.e. *number of prospective teacher enter the special universities* (university teacher training institute) and *number of prospective teacher enter general universities*. Nowadays the prospective teachers who enter the universities with teacher education program do not have to join the teacher certification since they will receive their certification together with their undergraduate diploma. Meanwhile the prospective teacher enter the general universities will have to join the certification program. There are delays for minimum 4 years before the number of undergraduate teachers is increased since the prospective teacher should follow the education for at least four years which is presented in the CRD as a delay mark between the link *number of prospective teacher enter general universities* and the *number of undergraduate teacher*. Another delay mark is presented between the link of *number of prospective teacher enter special*

universities and the *number of undergraduate teacher.* The more *teacher profession attraction* the more number of prospective teacher. Beside the *teacher profession attraction*, the *number of prospective teacher enters the special universities* will also increased when there is less *jobs availability instead of teacher*.

The *teacher profession attraction* is greatly affected by the *teacher salary*. Simply we can say that the more the salary is, the more people will attracted to be teacher. However we should also realized that there is a more complicated relation between these factors. The teacher salary does not have a positive correlation with the level of education of teacher (Jalal, et al., 2009). The salary given was relatively the same amount although there is a difference in the level of education. Therefore there was a lack of incentive for teachers to upgrade their academic qualification. Moreover the teacher profession will be more attractive for people with the lower educational background since they will be 'overpaid'. On the contrary, people with the higher educational level will be 'underpaid'.

The Teacher and Lecturer Law in 2005 stated that the teacher will receive the professional allowances if they are under graduate and have the educator certification. The total amount professional allowance is equivalent to the basic salary. This law aimed to give incentive to the teacher to upgrade their academic qualification and competencies. When there is a high number of certificated teacher and high number of teachers received professional allowances, the teacher profession attraction will be increased. Moreover the teachers will be willing to increase their academic qualification.

However a problem occurred after the teachers are certificated. The problem arises when there is an additional condition that the teacher should fulfill before they could receive their incentive. *The regulation on teacher teaching time* state that the teacher should fulfill 24 teaching hours per week. One teaching hour is equivalent to 35 minutes for the primary school, 40 minutes for the junior high school and 45 minutes for the senior high school. A teacher might not able to fulfill 24 teaching hours per week caused by the *teaching time availability* leastwise. The *teaching time availability* is affected by several factors, namely: *total number of student*, *regulation on learning time* and *total numbers of teacher (Directorate-General-of-Quality-Improvement-of-Teacher-and-Educational-Personnel, 2008)*.

When we look at Figure A 2, we can see that the *number of undergraduate teacher in cities* will affect the *teacher quality in cities* and *number of teacher join certification*. The teachers who join certification and fulfill the requirements stated in the portfolio will increase the *number of teacher succeed for certification*. This factor will add the *number of certificated teacher* after they receive the decree from the Director General of the Quality Improvement of Teacher and Education Personnel (Samani, Dasuki, et al., 2010a). Whereas a teacher who has not fulfill the portfolio requirements will increase the *number of teacher failed for certification*. These teachers have to join the teacher education and professional training or pendidikan dan latihan profesi guru (PLPG) and added to the *number of teacher join PLPG*. After joining the PLPG for 90 hours, where 1 hour is 60 minutes, the teacher will be examined (Samani, Dasuki, et al., 2010b). When a teacher succeeds the examination, then the teacher will be certificated (Samani, Dasuki, et al., 2010a). In other hand, if a teacher failed the examination, then he/she need to join the join the PLPG again. The *number of*

teacher join PLPG depends on the *number of teacher failed the PLPG examination*, the *number of quota per PLPG* and the *number of PLPG program*.

The same description applies to the *number of undergraduate teacher in rural areas*. It will affect the *teacher quality in rural areas* and *number of teacher join the certification*, and so forth. Afterward, the teacher quality will affect the education quality. The higher *teacher quality in cities*, the higher *education quality in cities* will be. Likewise, the higher *teacher quality in rural areas*, the higher *education quality in rural areas* will be. Hereupon, the education quality is contingent on three factors: *education quality in cities*, *education quality in rural areas* and *teacher quality*. The education quality in cities and the education quality in rural areas also depend on the teacher numbers.

A.2. Teacher Quantity Subsystem
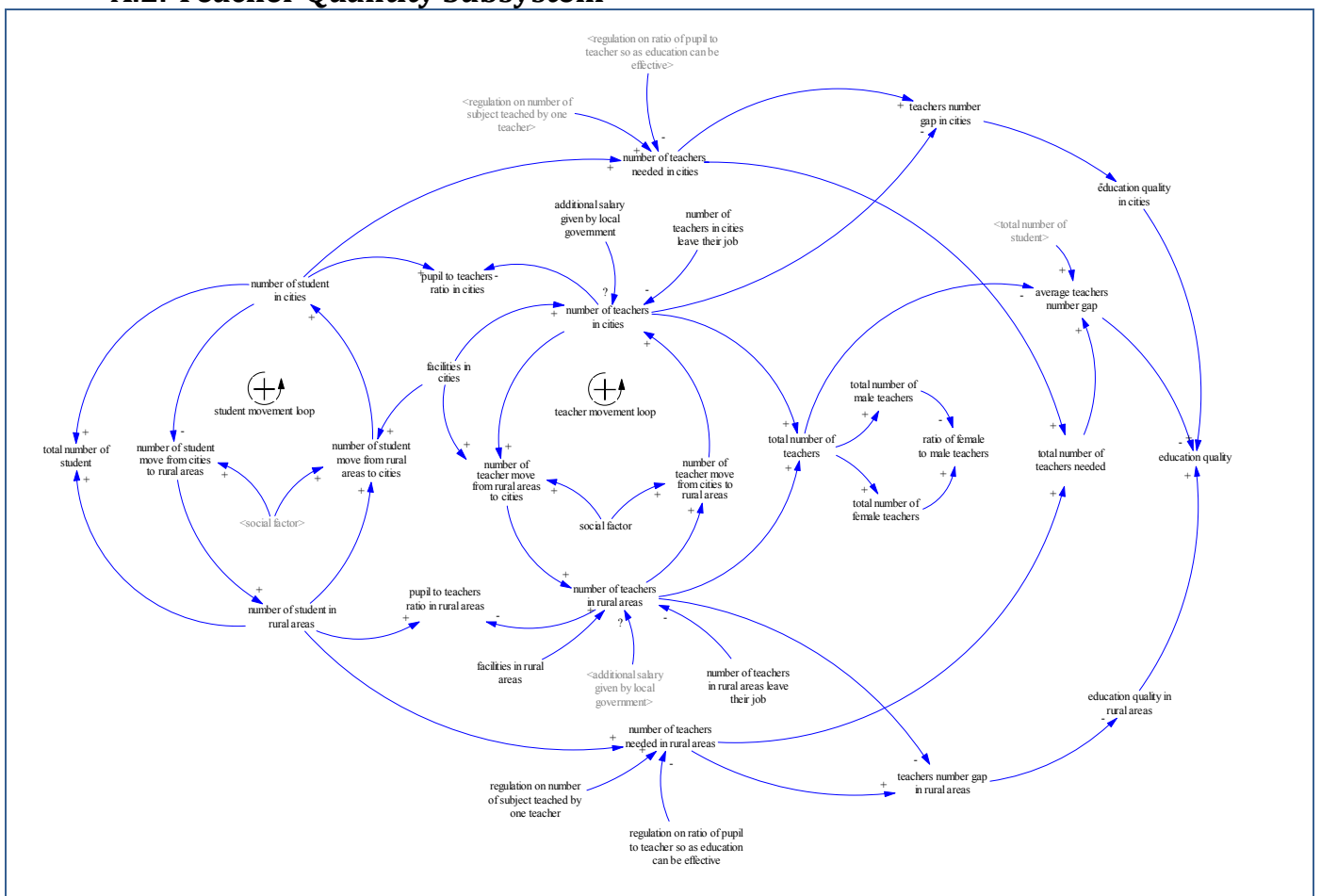
Figure A 3. Teacher Quantity subsystem

In general, the total number of student will determine the number of teacher needed. The total *number of student* in Indonesia is increased by the *number of student in cities* and the *number of student in rural areas*. From the CRD, we can see that the *number of student in cities* increases the *number of teacher needed in cities* and *existing pupil to teachers ratio in cities*. Meanwhile the *number of teacher in cities* will decrease the *existing pupil to teacher ratio in cities*. The availability of the *facilities in cities* will enlarge the *number of teacher in cities*; meanwhile the *number of retired teacher in cities* will reduce it.

The *number of teacher needed in cities* will be is influenced by the *regulation on number of subject teaches by one teacher* and the *regulation on pupil to teacher ratio*. Nowadays, one teacher may teach more than one subject (Minister of National Education, 2009b). A teacher can teach cognate subjects with her/his base subject. For example a geographic teacher may teach sociology, economic and history since these subjects are still cognate each other as social sciences (Subandiyo, 22 Maret 2010). Meanwhile a primary school teacher teaches all subjects in one group of pupils as a class teacher (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2009). This condition is confirmed by Nugraeni (9 April 2010) that as a primary school teacher, she teach all subjects in one group of student, except English, Religion and Sport. The regulation on pupil to teacher ratio stated that the maximum student in one class is 28 pupils, 32 pupils and 32 pupils for primary school, junior high school and senior high school level respectively (Minister of National Education, 2009a). However this condition depends on the school condition. When there is only 40 pupils from the area surround the school and only has one class room for each grade, then the school may has to do the teaching activities for these 40 pupils together in one class. In other words, one class may has 40 pupils.

The teacher number gap in cities can be calculated by subtracting the number of teacher needed in cities with the number of teacher in cities. Therefore *the number of teacher needed in cities* will increase the *teacher number gap in cities*. Meanwhile *the number of teacher number in cities* will decrease *the teacher number gap in cities*. In other words, the higher teacher number gap in cities will lower the *education quality in cities*.

The same description applies to the number of student in rural areas, the number of retired teacher in rural areas and the number of teacher needed in rural areas. However, since there are different conditions between the cities and rural areas, the factors will be different in numbers. We can find more facilities in cities than in the rural areas. In cities, we can find better transportation infrastructure, better education service, better healthcare facilities, and other facilities such as cinema and shops. These differences gives reason to separate the factors related to the condition in the cities and the rural areas. For example, there is a difference between the number of pupil and teacher in cities and in rural areas, since there is a difference in the number of population.

When we look at the middle part of the CRD, we can see that together with the number of teacher in cities, the number of teacher in rural areas will increase the *total number of teacher*. This number will increase the total number of male teacher and the total number of female teacher. These factors lead to the *ratio of female to male teacher* if we divide the *total number of female teacher* to the *total number of male teacher*. This ratio can be used to identify the gender balance in the teaching profession. As explained before that Indonesia has achieved the gender balance in teaching profession (EFA Secretariat, 2007).

The *total number of teacher needed* can be captured by adding the number of teacher needed in cities and number of teacher needed in rural areas. This number is used to project the teacher stocks. Indonesia has fulfilled the number of teacher stocks needed with the pupil-teacher ratio of 1:19 (Otchet & Frostell, 2009).

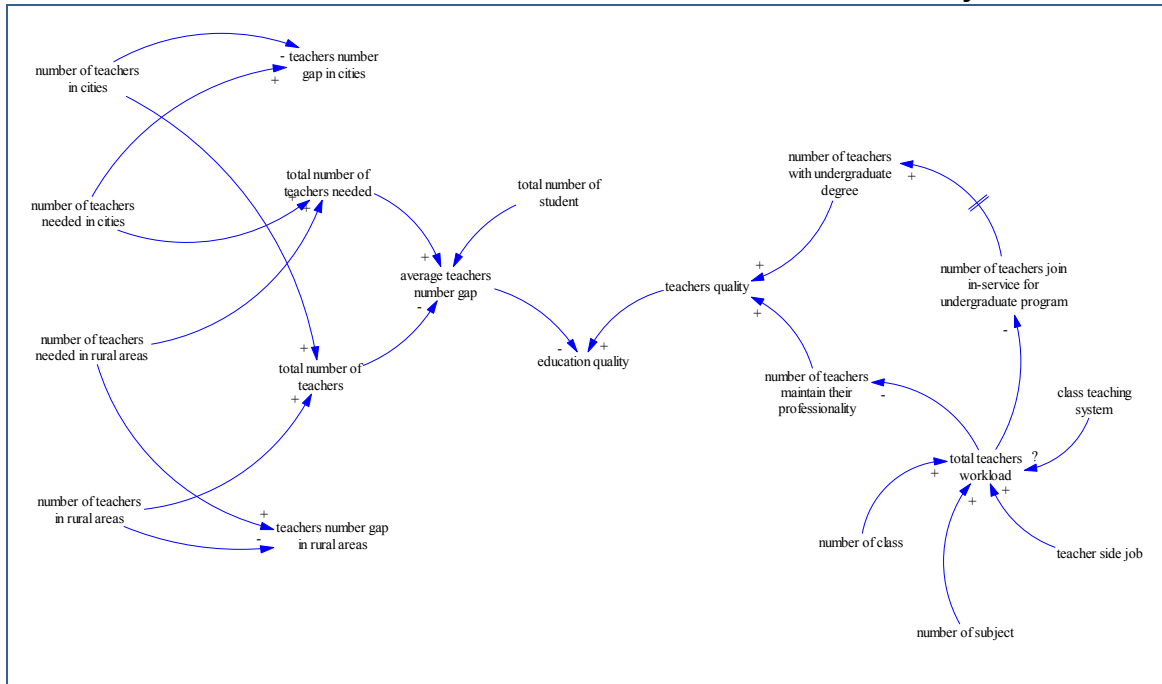## A.3. Teacher Workload and Number of Teacher Needed Subsystem

Figure A 4. Teacher Workload and Number of Teacher Needed Subsystem

The education quality is determined by the average teacher number gap and the teacher quality. When we look at the teacher quality, it is affected by their education and their professionalism. When a teacher has been educated in the undergraduate level and they are maintaining the professionalism, they can be stated as high qualified teacher.

When a teacher is not holding an undergraduate degree yet, they could join the in-service training program provided by the DGHE. They could join the Distance Learning Program for the rural areas teachers, the ordinary undergraduate program or join the undergraduate program in the Open University. The Open University is a special undergraduate program dedicated for the working students. The classes are given in the afternoon after 5 pm up to 10 pm. Therefore a teacher can still teach in the working time and then join the classes in the Open University after they finish their teaching. There is a delay between the number of teacher join in-service for undergraduate program and the number of undergraduate teacher since they have to join the education for at least 4 years.

In order to maintain their professionalism, they should continuously read, join trainings, do innovative research, and many other professionalism developing activities. In addition, a teacher should also improve their knowledge by learning at the higher level, for example taking the master program for those who already hold an undergraduate degree. They will not be able to continuously develop their professionalism if they do not have enough time caused by their high workload.

The QITEP regulates that a teacher should teach minimum 24 hours of teaching time per week before they acquaint their professional allowances. Based on the interview on five teachers in rural areas and in cities, they stated that the teacher workload set out by the government (QITEP) is too

much. Even though their teaching time is considered to be the same, as 24 hours of teaching time, one teacher might have a different workload than other teacher. One teacher may have too excessive workload meanwhile others might have less workload. By using the Causal Relation Diagram, the factors influencing the teacher workload is analyzed to understand why the teachers complaints on this matter. The *total teacher workload* is determined by four factors: *the number of subjects*, *the number of classes* taught by a teacher, *the class teaching system* and a factor which a teacher has a side job.

The more the subjects teach, the higher the teacher workload will be. A primary school teacher who become a class teacher and teach all of the subjects (except religion and sport) will have a heavier work load than the junior high school teacher who only teaches one subjects. The primary school teacher will need to prepare the materials for all of the subjects. Meanwhile the junior high school teacher can prepare the materials once and then use it to teach several classes (Nugraeni, 2010). The same story applies to the junior high schools teachers. When a teacher teaches several cognate subjects; for example the economics, history, geographical and sociology as a social science; then his/her workload will be higher than a teacher who only teaches one subjects, for instance Bahasa Indonesia (Subandiyo, 2010).

It can be directly concluded that a teacher teaches more than one class will have a higher workload than a teacher teaches one class. It also depends on the class teaching system (Kunaefi, 2010; Suharwoto, 2010). When a teacher is teaching several classes but still in one grade, then he/she might prepare the materials once and then use it to teach several classes. On the other hand, when a teacher teaches several grades, then he/she have to prepare the materials for every class. This occurs at the schools with small number of classes. For example a junior high school that only have one class for each grade, then the mathematics teacher will have to prepare the materials for three different grade and only use the materials once for each grade. In this case, the teacher will have a high workload.

APPENDIX B. INTERVIEW

The list of experts and related actors interviewed are presented in Table B 1. The complete interview transcript is not attached in this research because of the excess number of pages.

Table B 1. List of experts and related actors interviewed.

Number	Name	Position	Interview Topic
1.	Abdullah Alkaff	Expert of the Bureaucracy and Organizational Restructure for the Ministry of National Education.	Interview on the Ministry of National Education bureacracy organizational structure reformation
2.	Arbayah Kumalawati	1) Head Master of Indonesia School in the Netherlands 2) Former Head Master of SMA N 1 Tarakan City	Interview on current teacher condition in Tarakan city
3.	Baedhowi	Director General of Quality Improvement of Teachers and Education Personnel	Interview on the Indonesia teacher quality improvement program
4.	Diah Harianti	Head of Center of the Educational Curriculum, Ministry of National Education	Interview on the basic education curriculum
5.	Endang Susilowati	Primary School Teacher and Head Master in SD N Widurejo, Mojokerto District, East Java	Teacher quality, teacher quality improvement policy and teacher workload
6.	Erika Vroege and Sandra Kemperman	Teachers in Prins Mauritsschool, Rijswijk, the Netherlands	Interview on the teaching methods in the Netherlands
7.	Fasli Jalal	1) Former Director General for Out-of-school Education 2) Former Director General for Quality Improvement of Teachers and Education Personnel 3) Director General of Higher Education 4) Vice Minister of National Education	Coordination mechanism in education quality and national EFA program
8.	Gogot Suharwoto	1) Former Head of Data and Information, Ministry of National Education 2) Expert of the Secretariat of Task Force on Teachers for EFA	EFA programs and teacher quality improvement programs by UNESCO
9.	Ngatijan	1) Junior High School Teacher in SMP N I, Yogyakarta City 2) Vocational School Teacher in STM II, Yogyakarta City 3) Teacher Trainer for Yogyakarta Province region	Teacher quality, teacher quality improvement policy and teacher workload
10.	Rochmat Wahab	Rector of Universitas Negeri Yogyakarta (Teacher Training Institution), Yogyakarta.	Teacher quality, teacher quality improvement policy and teacher workload
11.	Subandiyo	Junior High School Teacher and Vice Head Master in SMP N I, Yogyakarta City	Teacher quality, teacher quality improvement policy and teacher workload
12.	Suwarsih Madya	Head of the Province Education Service Agency in Yogyakarta Province	Interview on the teacher distribution management system in the province

			level
13.	Syamsury	Head of the District Education Service Agency in Yogyakarta City	Interview on the teacher distribution management system in the district level
14.	Syawal Gultom	Rector of Universitas Negeri Medan (Teacher Training Institution), North Sumatra	Teacher Training Institution role in teacher quality improvement
15.	Titik Andayani	Junior High School Teacher in SMP N Situbondo, Situbondo District, East Java	Teacher quality, teacher quality improvement policy and teacher workload
17.	Wahyu Nugraeni	Primary School Teacher in SD Ungaran I, Yogyakarta City	Teacher quality, teacher quality improvement policy and teacher workload

APPENDIX C. SYSTEM DIAGRAM

The teacher distribution and teacher workload problem is quite complex and require a system diagram to capture the logical relation between the influencing factors and the objective that the problem owner wants to achieve. The system diagram to model the teacher distribution system is elaborated in section C.1; meanwhile section C.2 is dedicated to discuss the teacher workload system.

C.1 ANALYZING THE TEACHER DISTRIBUTION PROBLEM SYSTEM

As depicted in Figure C.1 the problem owner wants to achieve their goal of more equal teacher distribution and measure its success by three indicators. These indicators are the percentage of teacher teaches less than 24 hours per week, student teacher ratio, and average teaching hours. These indicators are discussed as follows:

1) Percentage of teacher teach less than 24 hours per week

    Based on Law no.14/2005 on the Teacher Quality Improvement and the Government Regulation no.74/2008 on Teacher and School Supervisor Workload clause 52 acts 2, teachers have to teach minimum 24 teaching hours and maximum teaching hours per week. Therefore by having less percentage of teachers teach less than 24 hours per week, we can assume that the teacher distribution is well-spread.

2) Student Teacher Ratio

    The student teacher ratio is used to capture the sufficiency of the teacher number needed. The Ministry of National Education Regulation no.16/2007 on the standard operating cost stated that the student teacher ratio for the primary school and junior high school are maximum 28:1 and 32:1, respectively (Minister of National Education, 2009a). When this ratio can be fulfilled then it could be concluded that the number of teacher is sufficient. Moreover this ratio can also capture if there is an excessive teacher number in cities or lack of teacher number in the rural areas.

3) Average teaching hours

    When the teacher average teaching hours is equal to 24 hours, we can assume that Indonesia has sufficient number of teacher and it is not excessive. When the average teaching hours is less than 24 hours, we can conclude that Indonesia has excessive number of teachers in some area where these teachers cannot fulfill their obligation to teach 24 hours per week. In the other hand, when the teaching hours is higher than 24 hours per week, we can conclude that Indonesia needs more teachers in order to reduce teachers' teaching hours.
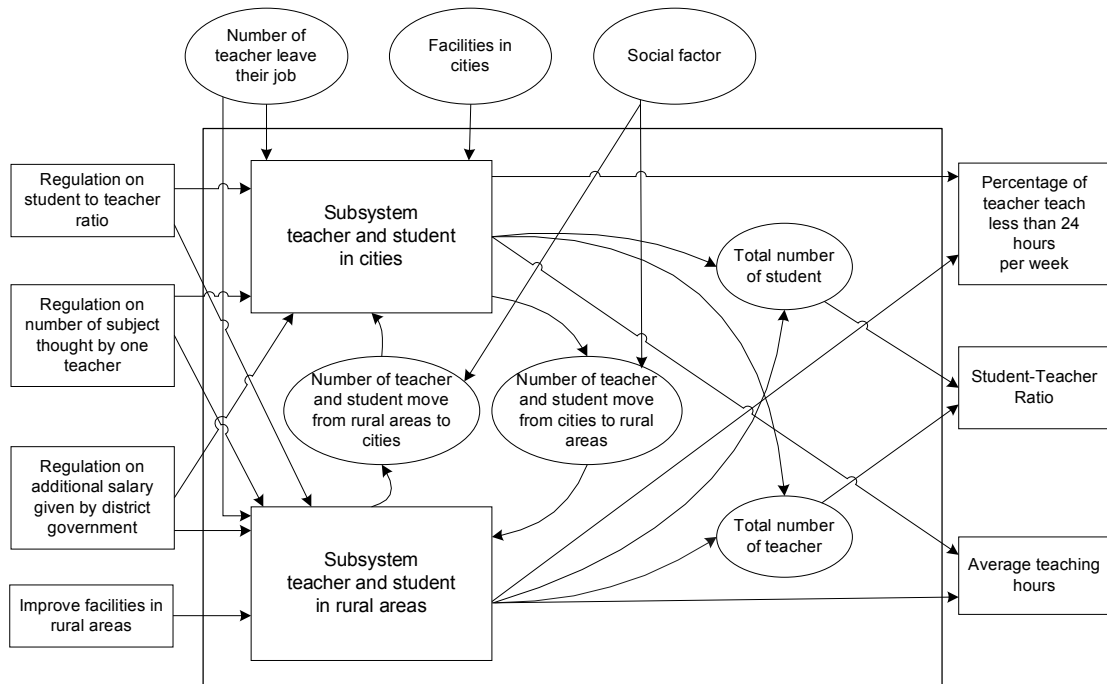
Figure C 1. Teacher Distribution System Diagram

The number of teacher leaves their job because of retirement, sick or died, or changing track from active teacher in school to administrative work cannot be influenced by the government. The facilities in cities and its development cannot be controlled by the government and agencies relating to the education. The last external factor of social factors also cannot be controlled by the government. For example a female teacher has to follow her husband to move from one district to another district caused by her husband job. When her mobilization is not approved by the district government, then she has to resign from her job. Another example when a student decides to move from the rural area to the cities to get a better education.

The policies as the steering factors might be proposed are:

1) The regulation on student to teacher ratio

    This standard is set up by the Ministry of National Education and will affect the number of teacher needed in Indonesia.

2) Regulation on number of subject teaches by one teacher

    This regulation is set up by the Ministry of National Education in order to assure that every teacher teaches based on their expertise. When there is a problem of teacher oversupply in one area and undersupply problem in another area, a regulation to permit one teacher to teach more than one subject or team teaching has a major impact to solve the problem. However teacher may only teach different subjects which is still allied with the main subject. This regulation has been set up by the government (Directorate General of Quality Improvement of Teacher and Educational Personnel, 2008).

3) Regulate additional salary given by district government

Since the autonomy, the district government is obliged to give additional salary to the teachers based on their capability (Syamsury, 2010). Since this additional salary is given based on the district government capability, the amount of the additional salary will be different from one district to another city. For example, in Yogyakarta city, the additional salary is given in a range of 75,000 rupiah to 100,000 rupiah (Syamsury, 2010). Meanwhile the additional salary given to teacher in Tarakan city is 3,800,000 rupiah (Kumalawati, 2010).

This difference can also be seen in Special Province of Aceh. Teacher in Banda Aceh district receive additional salary of 350,000 rupiah. Teachers in Aceh Selatan district and Aceh Besar district receive 200,000 rupiah. Whereas in Sabang district they obtain 1,000,000 rupiah (Yusrizal, 2009).

By assuming that the district government in rural areas has fewer resources than the district government in big cities, it could be predicted that this difference might make people tend to prefer to stay in big cities than in rural areas. Therefore the additional salary given by the district government should be regulated.

4) Improve the facilities in rural areas

The school and education facilities in many rural areas are considered to be lower than the facilities in the cities. The facility availability will affect the rural areas attractiveness. Through facilities development the Ministry could promote and persuade teachers to move to rural areas.

C.2. ANALYZING THE TEACHER WORKLOAD PROBLEM SYSTEM

Figure C.2 the shows the teacher workload system diagram. In this system diagram, we can see that problem owner wants to increase the teacher self study time by reducing their workload. This objective is measured by a solely indicator of time to improve knowledge. The higher the time a teacher have to improve their knowledge, indicates the higher success that the problem owner has achieved.
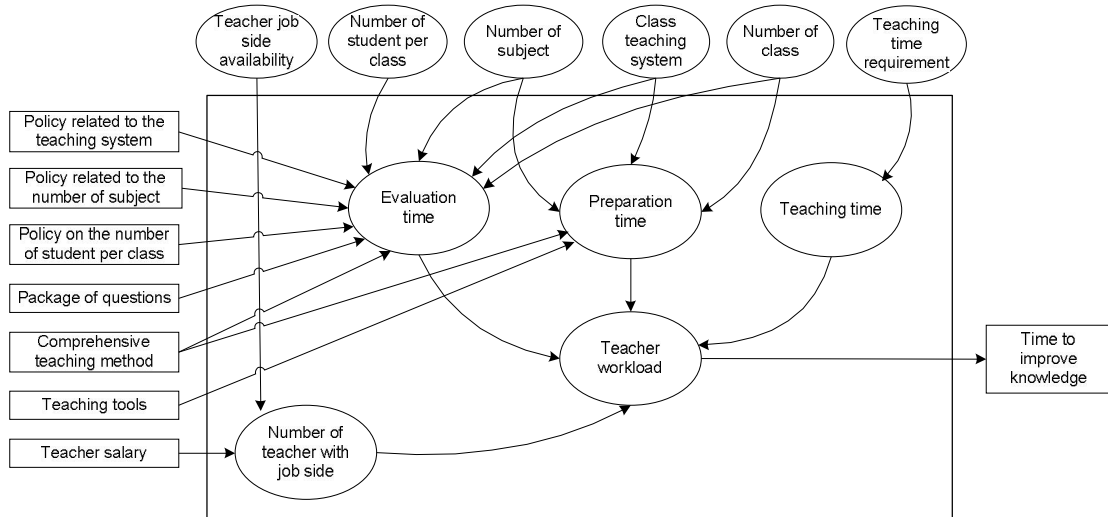
Figure C 2 Teacher Workload System Diagram

Based on the Causal Relation Diagram presented in Appendix A.2, we can see there are several external factors influencing the teacher workload system. These factors are:

1) Teacher job side availability

   The high availability of teacher job side will attract teachers to have a job side instead of being a teacher. When teacher has a job side, they will use their time to do their job side. Moreover they might forget their responsibilities to be a teacher and consider their job side to be more important. The teacher job side is usually to be a taxi driver, motorcycle taxi driver, give additional tutoring out of school, etc.

   The teacher job side availability is considered as one of the external factor since it is highly influence by the Indonesia economy condition. When the Indonesia economy condition is good, there will be a lot of job availability. On the contrary, when there is an economy crisis, the job availability will be lessening and people will compete to get a job. In result, teacher will have less opportunity to get a job side and they will remain their job without any job side.

2) Number of student per class

   It can be directly concluded that when there is more student in one class, then the teacher workload will be higher. On the contrary, when there is less number of students, then the teacher workload will be lessened. The number of teacher is regulated by the Ministry of National Education coordinating with the Ministry of Finance. This number is set based on the existing school capacity and Indonesia economic growth. Since the Indonesia economic growth cannot be influenced by the problem owner, the number of student is also considered to be an external factor.

3) Number of subject

When a teacher teaches more than one subject, they will have higher workload than teacher who only teaches one subject. For example a teacher who teach economics, geographic, sociology, and history together as social science will have higher workload than a teacher who one subject of Indonesia language (Subandiyo, 2010). The number of subject teaches by one teacher is adjusted to the school condition. If the school is located in the rural area and it only has several teachers, then these teachers will be obliged to teach more than one subject. This condition may also applies when the school decided to teach several subject together as a cognate subject, for example economics, geographic, sociology, and history together as social science, then the teacher will have to teach several subjects in one time.

4) Class teaching system

The teaching system highly affects the teacher workload. Teacher A who teaches many classes in different grades will have higher workload than Teacher B who teaches many classes in the same grade. Teacher A has to make different preparation for each grade. Meanwhile Teacher B can prepare once and use it in different classes.

However this teaching system is highly dependent on the school condition. For instance for a school with one class for each grade will no option instead of asking their teacher to teach every grade. Whilst school with several classes in each grade might have option of asking their teacher to teach only one grade. In addition, since there is a problem of uneven teacher distribution, many teachers are lack of teaching time. In result, some of these teachers will fill any vacant classes. Moreover the class teaching system also depends on the Indonesia economy condition. When the Indonesia economy condition is good, then it is possible to hire more teachers in order to set that every teacher only teaches one grade.

Since it is highly dependent to the school condition and the Indonesia economy condition, this factor is considered to be an external factor.

5) Number of class

Similar to the class teaching system, the number of class teaches by a teacher will influence the teacher workload. The more number of classes thought by a teacher, the higher the teacher workload will be. However this number of class depends on the subject a teacher is teaching. When the subject is only given in fewer hours than the others, then the teacher will have to teach more classes in order to fulfill the 24 hours obligation. The subject hours is set by the National Education Standard Agency together with the Center of Education Curriculum based on the Indonesia economy development goals.

An example is given by comparing a music teacher with a mathematics teacher. A music teacher in Junior High School is an example of a teacher with high workload (Subandiyo, 2010). Music subject in Junior High School level is only given in 1 teaching hours per week.

The music teacher in Junior High School I Yogyakarta has to teach 18 classes, consist of 6 classes for each grade. She has to prepare the course for three different grades. Furthermore, since one class consist of approximately 40 students then she has to assess approximately 700 students' work. In result, her workload becomes very high. In addition, although she already teach all of the classes in her school for 18 teaching hours, she still need another 6 teaching hours from other school to fulfill her obligation of 24 teaching hours.

In contrary, a mathematics teacher will have less workload. Mathematics subject in Junior High School is given in 4 teaching hours per week (Minister of National Education, 2006). Since there are 6 classes for each grade in the Junior High School I Yogyakarta, the mathematics teacher will have less workload. He only has to prepare the course once and can be used for all classes. He only needs to assess 240 students' work.

6) Teaching time requirement

Based on Law no.14/2005 on the Teacher Quality Improvement and the Government Regulation no.74/2008 on Teacher and School Supervisor Workload clause 52 acts 2, teachers have to teach minimum 24 teaching hours and maximum 40 teaching hours per week. This requirement is set by the Ministry of National Education.

Although this requirement is set and can be influence by the Ministry, but the Ministry wants to keeps this teaching time requirement as it is. For this reason, this factor is classified as one of the external factors.

In the left part of the system diagram, we can see seven factors which known as the steering factors. These steering factors are the means which might be used to solve the teacher workload problem. The steering factors are Policy related to the teaching system; Policy related to the number of subject; Policy on the number of student per class; Package of questions; Comprehensive teaching method; Teaching tools; and Teacher salary. These steering factors are also embodied in the means end diagram as explained in the Appendix D.1.

APPENDIX D. MEANS ENDS DIAGRAM

The means-end diagram helps the problem owner to answers "which means can help the problem owner to achieve their objective?" Two means end diagram is presented in this section to solve the problem of teacher distribution and teacher workload.

Section D.1 discusses the mean ends diagram used to analyze the alternative means to solve the teacher distribution problem in Indonesia. Meanwhile section D.2 elaborates the means end diagram used to analyze the alternative means to reduce the teacher workload.

D.1 FINDING ALTERNATIVE MEANS TO SOLVE THE TEACHER DISTRIBUTION PROBLEM

The better and more equal teacher distribution between cities and rural areas can be achieved by increasing the number of teachers in the rural areas and moving the teachers from cities to rural areas. However the sufficient number of teacher in the cities should also be maintained. We do not want the cities to be lack of teacher numbers. Therefore, the good teacher mapping should be formulated, as seen in the epicenter of the means end diagram in Figure D.1.
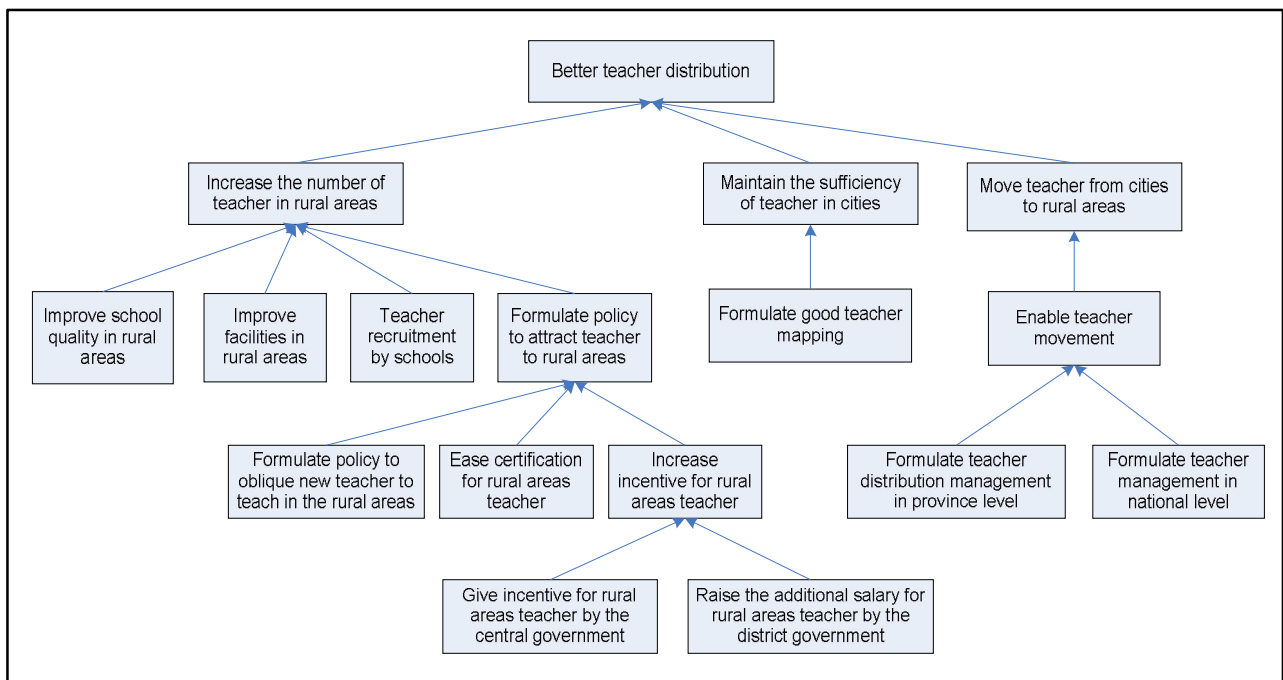
Figure D 1. Means Ends Diagram for the Teacher Distribution Problem

The number of teacher in rural areas can be increased by attracting teacher to teach in the rural areas. This can be done by improving the school quality and facilities in the rural areas, and formulate a policy to attract the teachers. The policy can be formulated by oblique new teachers to teach in the rural areas, ease the certification for rural areas teacher, and increase the incentive for rural areas teacher. The incentive can be given by the central government or the district government. If the incentive is given by the central government, then it will be given by the Ministry of Finance through the Ministry of National Education; meanwhile if the incentive is given

by the district government then it will be given through the district education service agency based on the districts capabilities.

In order to move the teachers from cities to rural areas, the regulation must support the movement and enable teacher to move from one district to other district. The movement can only be executed if there are distribution managements at the province and the national level. This distribution management enables to release teacher from one district and moved to other district.

D.2 FINDING ALTERNATIVE MEANS TO REDUCE THE TEACHER WORKLOAD.

The second means end diagram is dedicated to increase teacher self-study time by reducing the teacher workload. In this way, the teacher quality is expected to be improved in the future.

In order to increase teacher time for self-study, teacher must have opportunity to provide more time to read books, join the teacher trainings, and try to make new innovative teaching materials and tools. This time provision can be done by asking teacher to no longer have job side, lessen the teacher preparation work, and lessen the teacher evaluation work. By increasing the teacher salary, we can expect that the number of teacher who has job side can be lessened. This can happen because the teacher will be able to fulfill their needs without having job side.
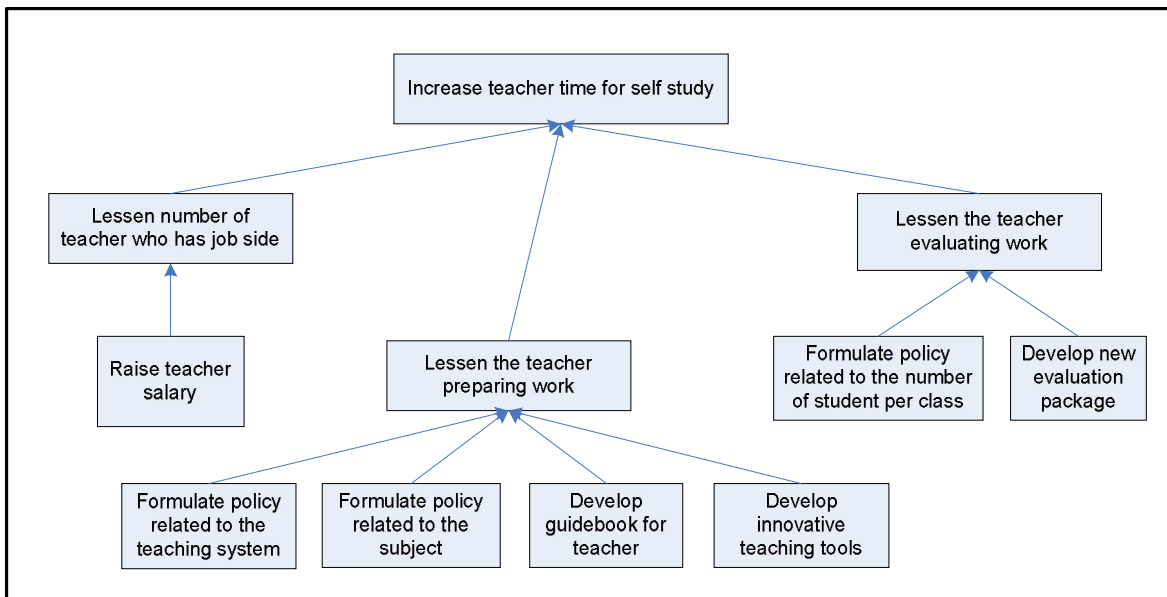
Figure D 2. Means Ends Diagram for the Teacher Workload Problem

The second way to increase teacher self-study time is by lessening teacher preparation work. This can be done by regulating the teaching system, the number of subject teaches by a teacher, developing a guidebook for a teacher, and developing the innovative teaching tools to support the class activity. Meanwhile in order to lessen teacher evaluation work, we can regulate the number of student per class and develop new evaluation package.

APPENDIX E. ACTOR NETWORK ANALYSIS

As the problem owner, the Ministry of National Education puts their main interest to equally distribute the teachers between cities and rural areas and to increase the teacher self-study time by reducing their workload. This objective can be achieved when the related actors are willing to cooperate. Since other actors concern with this problem also has their own objective, it is important to figure out their interest, perceptions, and interdependencies.

This actor network will elaborate the actor characterizing, network of actor chart, actor perception, actor interdependencies, and field of actors concerning the teacher distribution management and comprehensive teaching method development.

E.1. ACTOR ANALYSIS IN THE TEACHER DISTRIBUTION MANAGEMENT

This section is intended to analyze the network of actors related to the new teacher distribution management at the province and the national level.

E.1.1. Teacher Distribution Management Actor Characterizing

Table E.1 shows the actor characters based on their values, perceptions, and the resources they have. The resources are divided into three types: power, network, and other resources. The actors are classified into three groups based on their position in the governance system: the Central Government level, Local Government level, and Non-government group.

Tabel E 1. Teacher Distribution Management Actor Characterizing

Actor	Values	Perceptions	Resources		
			Power	**Network**	**Other Resources**
Central Government					
Ministry of National Education	Good education quality	Good teacher quality lead to good education quality	Regulation; Money; National Budget	Ministry of Finance; Ministry of Home Affairs; Ministry of State Apparatus Empowerment and Reform Bureaucracy; the National Civil Service Agency; Indonesian Teachers Association	
Ministry of Finance	Economic growth	Good human resources lead to high economic growth	Regulation; Money; National Budget; Tax.	Ministry of National Education; Ministry of Home Affairs; Ministry of State Apparatus Empowerment and Reform Bureacracy; the National Civil Service Agency	

Ministry of Home Affairs	Regional development and community empowerment through decentralization	Lack human resources hamper the regional development. The district government should also support the national development	Regulation; Money; National Budget	Ministry of Finance; Ministry of National Education; Ministry of State Apparatus Empowerment and Reform Bureaucracy; the National Civil Service Agency	
Ministry of State Apparatus Empowerment and Reform Bureaucracy	Well-managed public service personnel	Unwell-managed public service personnel cause low quality of public services	Regulation; Money National Budget	Ministry of Finance; Ministry of Home Affairs; Ministry of National Education; the National Civil Civil Service Agency	
The National Civil Service Agency (Badan Kepegawaian Negara)	Well-managed national civil service personnel	Unplanned national civil service personnel distribution cause instability on development program	Regulation; Money	Ministry of Finance; Ministry of Home Affairs; Ministry of State Ap-paratus Empowerment and Reform Bureaucracy;	
Local Government					
Province Government	Competitive education community; Manage its province without interference from other actors	Local resources should be used optimally for the local development; Better education service lead to better education quality which establish compe titive education community	Regulation; Money; District Budget	Indonesian Teachers Association; Schools; Directorate General of Basic Education; Community	
District Government	Good education quality and wellmanaged teacher in the district; Authority remains in hands; Manage its district without interference from other actors	Better education service lead to better education quality therefore the well managed teacher is important however local resources should be used optimally for the local development; The autonomy enable district government to manage its district without interference;	Regulation; Money; District Budget	Schools; Directorate General of Basic Education; Community Indonesian Teachers Association;	
Non-government					
Indonesian Teachers Association (PGRI)	Welfare of teacher; ability to acquire professional allowance; Low workload	Unability to fulfill 24 hours teaching hours lead to no professional allowance	Skills; Social bond capital among teachers	Schools; Community; District Government; Ministry of National Education	

School	Well managed teacher in the school; Qualified teacher	Unwell-managed teacher lead tosatisfaction which may influence their teaching quality and may lower the school rating	Job opportunity	District Government; Community; Indonesian Teachers Association;	

E.1.2. Teacher Distribution Management Actor Network

Figure E.1 shows the network of actors in the Teacher Distribution system with three major groups of actors as classified in section E.1.1 are depicted in the chart.
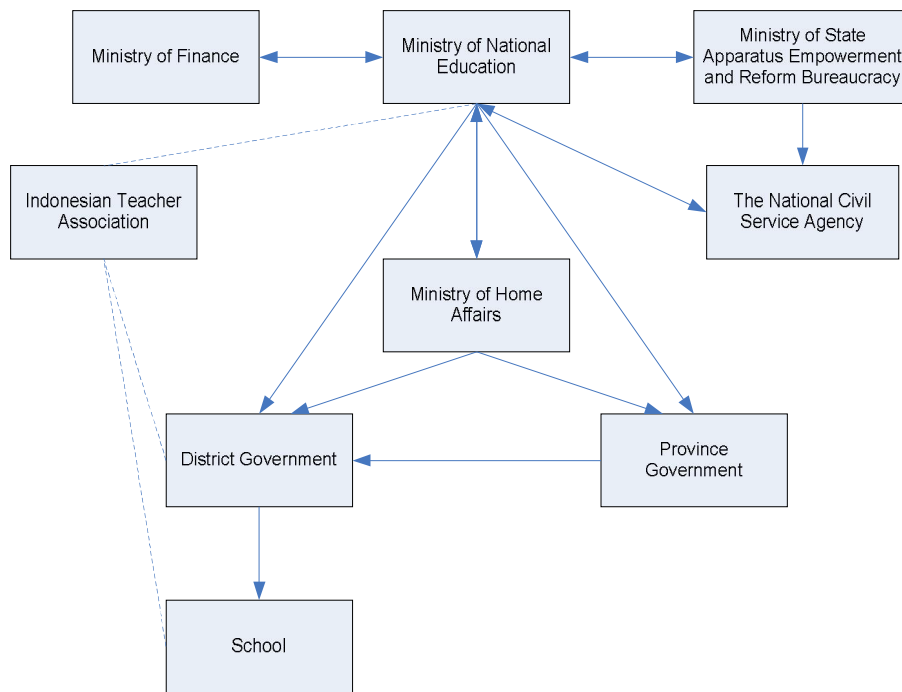
Legend
Solid lines with one arrow: hierarchical formal relationship
Solid lines with two arrows: influential formal relationship
Dashed lines: influential informal relationship

Figure E 1. Teacher Distribution Management Network of Actor Chart

The Ministry of National Education as the problem owner has formal coordination relation depicted with solid lines with two arrows to the three Ministries and one Agency: Ministry of Finance, Ministry of State Apparatus Empowerment and Reform Bureaucracy, Ministry of Home Affairs and the National Civil Service Agency.

Below the National Government row, there is the Province Government and the District Government. Although based on the law no.32/2004, the District Government has its authority to manage its education management in their district, the Ministry of National Education still has a hierarchical formal relationship to the Province Government and the District Government to regulate the education system and implementation.

The Indonesian Teacher Association as the teacher representative has informal influence to the Ministry of National Education, District Government and the Schools. The schools are managed by the District Government through the District Education Service Agency; therefore the link between the District Government and the School is a hierarchical formal relationship.

All of those actors are considered as having concern with the teacher distribution management. Some regulations or laws exist in the relations among actors. Between Ministry of Finance and Ministry of National Education, their relationship concerning the teacher salary and professional allowances is arranged by the National budget in the education post as mentioned in the Constitution 1945 and the Law no 20/2003. The salary and professional education are given to the teachers through the National Civil Service Agency and the District Government. The amount of the salary is proposed by the Ministry of National Education and the Ministry of State Apparatus Empowerment and Reform Bureaucracy to the Ministry of Finance. The Ministry of Home Affairs is considered to be an important actor since this Ministry of Home Affairs has the authority to regulate and manage the district government.

E.1.3. Teacher Distribution Management Actor Interdependencies

Table E.2 presents the Ministry of National Education, as the problem owner, dependency to other actors. It also specifies the importance of the resources of other actors which might able to help the problem owner to implement the new teacher distribution management at the province and the national level. By specifying the importance of the resources, the Ministry of National Education will able to map which actors are critical in their view.

Tabel E 2. Teacher Distribution Management Actor Interdependencies

Actor	Degree of replaceability (Limited, Large)	Dependency (limited,medium,high)	Critical actor (yes/no)
Central Government			
Ministry of Finance	Limited	High	Yes
Ministry of Home Affairs	Limited	High	Yes
Ministry of State Apparatus Empowerment and Reform Bureaucracy	Limited	Medium	Yes
The National Civil Service Agency (Badan Kepegawaian Negara)	Limited	Medium	Yes
Local Government			
Province Government	Limited	High	Yes
District Government	Limited	High	Yes
Non-government			
Indonesian Teachers Association	Limited	Medium	Yes
School	Large	Medium	No

As presented in table E.2, we can see that the Ministry of National Education is highly dependent on other actors in the central government and local government level to reach the objective. It seems that every resource they have gives critical impact to the teacher distribution management implementation. Meanwhile the Indonesian Teacher Association is the only actor from the non-governmental group which is considered to be critical.

E.1.4. Field of Teacher Distribution Management Actors

The field of actor is used to estimate which actors are dedicated or not. The actors who are dedicated with the similar interest and objective may have in-line objective with the problem owner or can support the problem owner without any compensation needed. Meanwhile the non-dedicated actors are actors who may need to be compensated for each-other. The field of actors related to the teacher distribution management is presented in Table E.3.

Tabel E 3. Teacher Distribution Management Field of Actors

Actor	Dedicated		Non-dedicated actors	
	Critical actors	**Non-critical actors**	**Critical actors**	**Non-critical actors**
Similar / supportive interest and objective	Ministry of Finance			School
	Ministry of State Apparatus Empowerment and Reform Bureaucracy			
	The National Civil Service Agency			
	Ministry of Home Affairs			
Conflicting interests and objective	Province Government		Indonesian Teacher Association	
	District Government			

The Ministry of Finance, Ministry of State of Apparatus Empowerment and Reform Bureaucracy, the National Civil Service Agency, and the Ministry of Home Affairs are the critical-dedicated actors with supportive interest and objective. Meanwhile the Province Government and the District Government are critical-dedicated actors with conflicting interest and objective, where they will want to remain their authority to manage their teacher without any interfere from other actors.

As in non-dedicated actors, we can see the Indonesian Teacher Association which has conflicting interest and objective with the problem owner. This happens since the Indonesian Teacher Association, as the teacher representative, will try to keep the teachers to stay in their region and not be moved. The school is the non-critical actors with supportive interest and objective since they also want a well-distributed teacher between cities and rural areas. The school in cities does not want too much teacher in their school, meanwhile the school in rural areas want to have a sufficient number of teacher teaches in the school.

E.2. ACTOR ANALYSIS IN THE COMPREHENSIVE TEACHING METHOD DEVELOPMENT

This section elaborates the actor network analysis related to the comprehensive teaching method development. The analysis encompasses the actor characterizing, mapping the actor network, actor interdependencies and field of actor.

E.2.1. Comprehensive Teaching Method Development Actor Characterizing

Table E.4 shows the actor characters. This matrix figures the actor values, perceptions, and resources and classified them into three groups based on their role and position in the governance system: Central Government, Local Government, and Non-government group.

Tabel E 4. Comprehensive Teaching Method Development Actor Characterizing

Actor	Values	Perceptions	Resources		
			Power	**Network**	**Other Resources**
Central Government					
Ministry of National Education	Good education quality	Good teacher quality lead to good education quality	Money; Regulation; National Budget	Book Center; Center of the Education Curriculum; District Education Service Agency; Teacher Training Institutions; National Education Standard Agency	
Book Center	Provision of good quality education book	1) The wide region of Indonesia with its different geographic, social and cultural lead to wide range of educational books. 2) The book publishers, bookstores and distributors generally located in big cities in Java Island which lead to low quality book in some areas	Skill and Expertise	Book publishers; Teacher Training Institutions Center of the Education Curriculum; National Education Standard Agency (Badan Standar Nasional Pendidikan)	
Center of the Education Curriculum	Curriculum and learning method development to support the good quality education	The wide region of Indonesia with its different geographic, social and cultural lead to wide range of learning method	Skill and Expertise	Teacher Training Institutions; Book Center; National Education Standard Agency (Badan Standar Nasional Pendidikan)	
Ministry of Finance	Economic growth	Good human resources lead to high economic growth	Regulation; Money; National Budget; Tax.	Ministry of National Education; Ministry of Home Affairs; Ministry of State Apparatus Empowerment and Reform Bureacracy; the National Civil Service Agency	

National Education Standard Agency (BSNP)	Standard of Content setting to assure minimum qualification of student in every level	Although there is diverse condition of Indonesia, there is a minimum qualification every student should have.	Skill and Expertise	Teacher Training Institutions; Book Center; Center of the Education Curriculum	
Local Government					
District Education Service Agency	Well managed teacher in the district; Qualified teacher; Effective school based management	Teacher unability to fulfill 24 hours teaching hours lead to teacher satisfaction which may influence their teaching quality and school-based management effectiveness.	Regulation; Money; District Budget	Schools; Ministry of National Education; Book Publisher; Teacher Training Institutions; Indonesian Teachers Association	
Non-government					
Indonesian Teachers Association	Welfare of teacher; ability to acquire professional allowance; Low workload	High workload lead to less time to improve their quality	Skills; Social bond capital among teachers	Schools; Ministry of National Education; District Education Service Agency	
School	Qualified teacher; Effective school based management to support school development	Good teacher lead to better school quality and better school programs	Job opportunity	District Education Service Agency; Community; Indonesian Teachers Association; Book Publisher	
Teacher Training Institutions	Produce qualified teachers	New teaching methods should be taught to prospective teachers in order to produce qualified teachers	Skills and Expertise	Indonesian Teachers Institution; Book Center; Center of Education Curriculum	
School Comittee	Happy and well-educated children;	Fun learning and innovative methods will ease the process of understanding Children who have fun in their studies is confidently believed to be happy	Money; Investment	Schools	
Book Publisher	Business growth and development	High value and volume of transaction will give high profit and business growth	Members; Money; Investment; Skills	District Education Service Agency; Schools; Book Center	

The Central Government consists of the Ministry of National Education, the Ministry of Finance and the National Education Standard Agency. The Ministry of National Education must coordinate internally between two actors: Book Center and Center of the Education Curriculum. In order to simplify the actor network analysis, the book center and the center of education curriculum is considered as one actor: the Ministry of National Education.
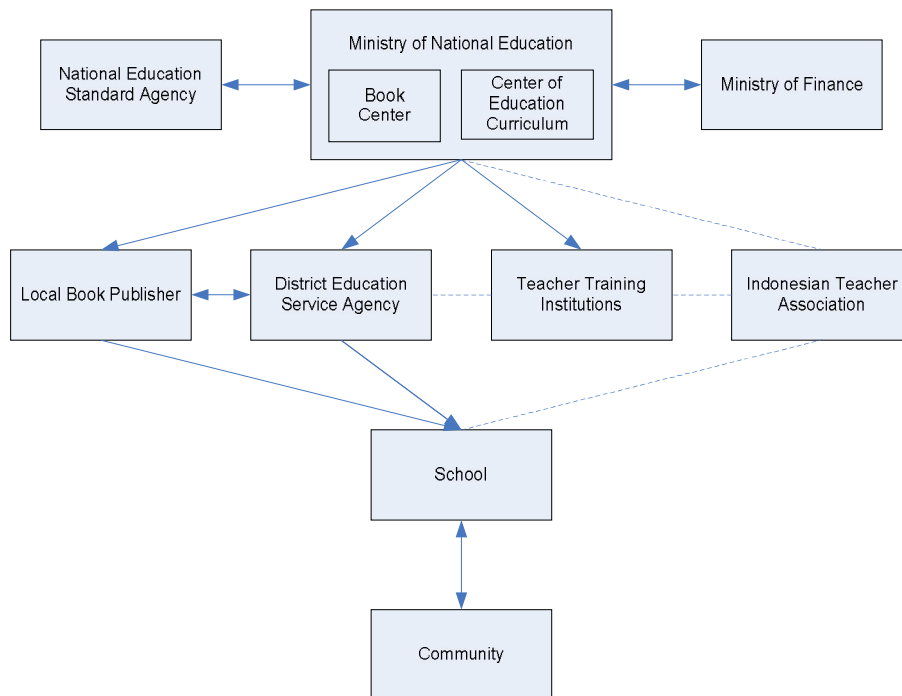
In the Local Government level, we can see the district education service agency meanwhile in the non-government group, we can find five actors: The Indonesian Teacher Association, the Teacher

Training Institutions, Schools, School Committee, and local book publisher. The relation between actors will be discussed further in section E.2.2.

E.2.2. Comprehensive Teaching Method Development Actor Network

Figure E.2 shows the network of actors related to the comprehensive teaching method development. As classified in Table E.4, there are three levels of actors: the central government level, the local government level, and the non-government group.

In the epicenter of the actor network, we can find the Ministry of National Education. This actor acts as the problem owner. In the central government level, the problem owner should coordinate with the Ministry of Finance and the National Education Standard Agency. The Ministry of Finance is expected to fund the teaching method development and to stimulate the local book publishers by giving incentive to them. The National Education Standard Agency is the coordinating agency who set the national education standard based on the national economy goal and development. These standards are used by the Center of Education Curriculum to set the structure of curriculum which will be used to develop the teaching materials used in the class activities. The book center is responsible to develop and publish education books in the national level. These books are subsidized by the central government and usually given to the schools with less competence (usually in the rural areas).

Legend
Solid lines with one arrow: hierarchical formal relationship
Solid lines with two arrows: influential formal relationship
Dashed lines: influential informal relationship
Figure E 2. Comprehensive Teaching Method Network of Actor Chart

The district education service agency is positioned in the local government level and has responsibility to improve the education service quality in the district level. In the non-government group, we can find five actors: The Indonesian Teacher Association, the Teacher Training Institutions, Schools, School Committee, and local book publisher. The Indonesian Teacher Institutions is considered to be non-governmental association as teacher representative. The Teacher Training Institutions is classified into non-government group since it does not deliver any new regulation or policy but it has responsible to educate and train teachers. The schools are important in this problem because they are projected to have the authority to select which teaching methods may most suit their needs. The school committee engagement is expected able to monitor and evaluate the new teaching method implementation in their children schools. The last actor is the local book publisher which is expected to develop and publish the teaching method books and tools based on the national education standard and the local needs.

E.2.3.   Comprehensive   Teaching   Method   Development   Actor Interdependencies

Table E.5 presents the comparison of the degree of replace-ability and dependency between the actors and the problem owner. It seems that the problem owner is dependant to the actors since they are defined as critical actors. In other words, they are important and give critical impact to the comprehensive teaching method development. Meanwhile the district education service agency is non-critical actor. Although the agency is responsible to the education service management in the district level, but they do not has any expertise or power to highly support the local book publisher in the teaching method development process. This agency is expected to monitor and evaluate the books selection process together with the school committee.

Tabel E 5. Comprehensive Teaching Method Development Actor Interdependencies.

Actor	Degree of replace-ability (Limited, Large)	Dependency (limited,medium,high)	Critical actor (yes/no)
Central Government			
Book Center	Limited	High	Yes
Center of the Education Curriculum	Limited	High	Yes
National Education Standard Agency	Limited	High	Yes
Ministry of Finance	Limited	High	Yes
Local Government			
District Education Service Agency	Large	Medium	No
Non-government			
Indonesian Teacher Association	Limited	High	Yes
School	Limited	High	Yes
Teacher Training Institutions	Limited	High	Yes
Community	Limited	High	Yes
Book Publisher	Limited	High	Yes

E.2.4. Field of Comprehensive Teaching Method Development Actors

Table E.6 presents the comparison of the similarities and differences among actors on how they perceive their desired situation as their objective. The similarities interest and objective may support the problem owner policy implementation. On the other hand, the different interest and objective may lead to potential conflicts between the actor and the problem owner.

Tabel E 6. Comprehensive Teaching Method Development Field of Actors

Actor	Dedicated		Non-dedicated actors	
	Critical actors	**Non-critical actors**	**Critical actors**	**Non-critical actors**
Similar / supportive interest and objective	School Committee	District Education Service	Indonesian Teachers Association	
Conflicting interests and objective	Ministry of Finance		Book Publisher	
	Book Center			
	Center of the Education Curriculum			
	National Education Standard Agency			
	School			
	Teacher Training Institution			

Although there is a conflicting interest between the problem owner with the Book Center, Center of Education Curriculum, National Education Standard Agency, School, Teacher Training Institution, and the Book Publishers; the problem owner may try to approach these actors simultaneously in order to develop understanding concerning the importance of the comprehensive teaching method development.

The Ministry of Finance has a conflicting interest with the problem owner since the Ministry will be reluctant to fund this comprehensive teaching method development. The Book Center, Center of Education Curriculum, National Education Standard Agency may think that the comprehensive teaching method development can reduce the teacher quality and motivation. This development will enable teacher to just use the available books and not be creative. This development will also increase their workload. Moreover the teacher training institutions will also have more tasks; where they have to develop an internship program and curriculum in order to educate and train teachers how to use these new methods. The schools may be reluctant since they will also have more tasks and responsible to select the books form the local book publishers. Whereupon the book publisher may be reluctant since they will gain less profit if they develop and publish books only for local needs with less volume of transaction (Harianti, 2010).

The School Committee, Indonesian Teacher Association, and the District Education Service Agency are the actors considered to have similar interest with the problem owner. These actors will support the teaching method development because it will reduce the teacher workload and finally increase the teacher and education service quality.

APPENDIX F. CASE STUDY OF NETHERLANDS BOOK AND CALIFORNIA, USA

Two cases were used to study the model of the comprehensive teaching methods proposed in chapter 4 and 5. These cases were taken from the Netherlands and the California, USA. The books from Thiememeulenhoff and Malmberg are two of many examples of teaching methods used in the Netherlands. Meanwhile the Science Framework for California Public Schools is the teaching method used in California, USA.

F.1. Books from Thiememeulenhoff and Malmberg

In the Netherlands, publishers develop teaching methods equipped by set of books for every subject given in the schools in the Netherlands. In general, this book set consists of lesson book for students, work book for students (*Werkschrift*), manual book for teacher (*Handleiding*), and a book containing the questions used for the evaluation and tests (*Toetsboek*) (Vroege & Kemperman, 2010). Vroege and Kemperman (2010) explain that the lesson book contains the explanation of lesson materials, the practice book contains the questions which need to be answered by the students in class to check whether they already understand the lesson or not, meanwhile the test book contains the questions used to evaluate the students in their tests. The work book consists of several level of questions, depending on the student capability. The book will be different for the smart student and ordinary student. The teacher manual book consist of the explanation of the materials which will be given in the lesson and gives some illustration on how the method should be used in the class. The method usually starts with the short explanation on how to tickle the students' interest. However if there are some student who still do not understand the lesson, teachers should be creative to explain the lesson in another way.

There are many book publishers in the Netherlands who develop teaching methods for basic education level, like the *Thiememeulenhoff* publisher and *Malmberg* publisher. The school has their right to choose which method they will use in the school. Schools will look at different type of methods and books from different publishers and then pick which methods best suits the school needs. Different school might have different criteria when they choose the methods and books, for example the Prins Mauritsschool in Rijswijk will choose set of book with a method which will enable the students to have more individual work and not always listen to their teachers. This criteria comes up because in their school, one teacher has to teach two grades in the same time (Vroege & Kemperman, 2010).

Teachers are usually already familiar with the methods developed by the publishers although there are some improvement and innovation in the teaching methods. Teachers learn the teaching theories and methods in their teacher school. Vroege and Kemperman (2010) explains that they are required to do internship from their first year study and they will be rotated to different schools with different methods every six months. Therefore they will get 7 until 8 different internship during their study. At the beginning of the internship, they are requested to observe the class teaching process. Later will be ask to teach one or two hours in front of the class and finally they will be fully charged for several days in the last month of their internship.

Whereas Indonesia is still lacking an internship program (Jalal, 2010). When the prospective teachers are still studying in the teacher training institutions, they do not have a lot of teaching practice. Jalal (2010) also explains that there is concern about teachers who graduate from their teaching education are not professional enough since they are lack of teaching experience.

F.2. Science Framework for California Public Schools

The Science Framework for California Public Schools is an education framework adopted by the California State Board of Education and provides the guidance for the whole education community including the schools, teachers, students and parents (Curriculum Development and Supplemental Materials Commission, 2004). The purpose of this framework development is to ensure that every student in California acquires good quality of education.

The framework consist of Science Content Standard book, Framework books for each subject, Science Safety Handbook for California Public Schools and California Standard test book. The Science Content Standard book explain the Curriculum of the education, meanwhile the Framework book consist of several books used in the class teaching activities. The Science Safety Handbook for California Public Schools explains the safety procedures to ensure the children safety and the California standard book contains the questions used to evaluate and test the student capability.

The Framework book set consists of interactive student book, activity book, interactive text book reading and writing book, and parent guidance at home (Curriculum Development and Supplemental Materials Commission, 2004). The interactive student book contains the lessons and what the teacher would explain in the class. The activity book, known as work book, provides the questions and practice the students must do in class. The interactive book contains the extra explanation about the lesson. The reading and writing book provide the explanation and practice for students to learn more about the subject. This book is not available for every subject. The last book is the parent guidance at home which consists of explanation about how can parents assist their children when they are studying or playing at home. This guidance is mainly dedicated for the basic school level children with age from 7 to 11 years old.

By using these books, teachers are expected to spend less time on review and preparation. Furthermore, this book set is developed to ensure that every teacher truly understand the knowledge and skills the students already posses (Curriculum Development and Supplemental Materials Commission, 2004).

APPENDIX G. EDUCATION UNIT LEVEL CURRICULUM DOCUMENTS

The syllabus, Learning Implementation Plan, Learning Script is presented in this section. An example of learning model is presented in section G.4. These documents and learning model need to be prepared by the teacher before they starts their teaching activities in class.

G.1. SYLLABUS

School name   : _____ Primary School
Class   : V (Five)
Subject   : ENGLISH
Semester   : 1 (First)

Competence Standard : **Listening**

      1.   Understand very simple instructions

      2.   Act based on the instructions

Competence	Learning materials	Learning activities	Indicator	Penilaian			Time	Learning sources
				Technique	Instru-ment	Example		
1.1 Responding to very simple instruction by showing their actions 1.2. Responding to very simple instruction by verbal	1. Tape/CD 2. Paperwork with pictures of clock. 3. Paperwork with the name of days	Students responds verbally and by doing activities	Student able to responds verbally and by doing activities, and give the right answers.	Student performance	*1. Listen and circle the correct time.* *2. Listen and respond verbally*	*1. When the tape/CD said: It's ten o'clock. Then students are asked to draw circle showing ten o'clock.* *2. When the cassette/CD said: It's wednesday. Then students are asked to draw circle the name of the day mentioned.*	4 x 35 minutes	1. Recorded questions in tape/CD 2. Textbook

G.2. LEARNING IMPLEMENTATION PLAN

School   : _____
Subject   : English
Class/Semester   : V/1
Competence standard : 1.   Understanding very simple instruction
Competence   : 1.1   Responding very simple instruction
Indicator   : 1.1.1 Responding very simple instruction by showing their actions
Time   : 2 x 35 menit
Learning objective   : Student able to respond very simple instruction by showing their actions
Learning method   : Student respond to very simple instruction by showing their actions
Learning activities steps:
1. Introduction
   - Teacher started the lesson by discussing subject matter will be explained in the class.
   - Teacher asked the students to mention the actual time and mentions some words regarding to the time.
2. Core activities
   - Students are required to read the learning materials in the book.
   - Students are required to listen to the tape/CD and draw the time mentioned
   - Teacher can replay the tape/CD so the students are confident with their answers.
3. Concluding activities
   - Teachers discuss the answers together with the students. Previously, teacher can ask the students to discuss their answers with their friends beside them.

Teaching tools/Learning sources:
1. *Let's Make Friends with English,* Bambang Sugeng, for class V, Esis
2. Pictures and objects related to the learning materials.
3. Recorded tape/CD
4. Other relevant books

Assessment:
a. Technique: Student performance
b. Instrument: *Responding*
c. Examples of instruments:
   Listen and circle the correct time.
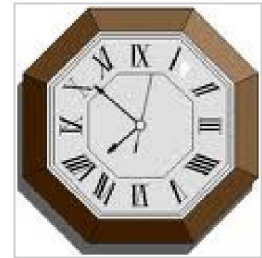
Approved by,   ……………,………………………
School Principal ……………………   Teacher

(_____)   (_____)

Listening Scripts
For Primary School level
Class V
(Based on text book of Let's Make Friends with English)

Lesson 1 **What Time is It?**

Let's listen and circle the correct time: page 9

1.A: What time is it?
  B: It is half past three.
2.A: What time is it?
  B: It is a quarter past ten.
3.A: What time is it?
  B: It is half past eight.
4.A: What time is it?
  B: It is three o'clock.
5.A: What time is it?
  B: It is a quarter to five.
6.A: What time is it?
  B: It is half past seven.

Let's listen and write (page 12)

1.A: What time is it?
  B: It is five o'clock.
2 A: What time is it?
  B: It is half past eight.
3.A: What time is it?
  B: It is a quarter past one.
4.A: What is the time?
  B: It is a quarter past ten.
5.A: What is the time?
  B: It is a quarter to six.
6.A: What is the time?
  B: It is a quarter to eight.

Let's listen and draw the time (page 13)

1.A: What time do you get up every morning?
  B: I get up at half past five.
2.A: What time do you go to school?
  C: I go to school at twenty past seven.
3.A: What time do you have lunch?
  B: I have lunch at five to twelve.
4.A: What time do you go home from school?
  C: I go home from school at a quarter to three.
5.A: What time do you play with your friends?
  B: I play with my friends at a quarter past four.
6.A: What time do you go to bed?
  C: I go to bed at nine o'clock.

APPENDIX H. TEACHER CERTIFICATION PROCESS

This appendix will describe the requirement for the teacher certification and the certification process. This appendix is used to support the explanation of the causal relation diagram of Teacher Quality subsystem in Appendix A.

As described in chapter 2, the teacher certification can be done in two schemes. The first scheme is the competency test through portfolio assessment. The second scheme is by directly giving the educator certification. The requirements for the certification and the certification process will be specified as follows:

H.1. The competency test through portfolio assessment

In education field, a portfolio is defined as a batch of documents consist of someone's personal information related to his/her educational achievement. This document can be used for accreditation, a proof for continuing education or to propose a certificate of competency (Samani, Dasuki, Mukhadis, Basuki, Wagiran, Suyud, Riyanto, et al., 2010). In the certification process, a portfolio is defined as a batch of document used to frame all of the teacher experiences, working and achievements during their professional duties as a teacher (Samani, Dasuki, Mukhadis, Basuki, Wagiran, Suyud, Riyanto, et al., 2010).

By the use of this instrument, the teacher competencies can be evaluated and assessed. Based on the guideline book for the portfolio preparation, there are 10 components will be assessed during the certification process, namely: (1) academic qualification, (2) education and training, (3) teaching experiences, (4) teaching planning and implementation, (5) school supervisors and superiors (head masters) evaluation, (6) academic achievement, (7) teacher professional development, (8) participation in the scientific forum and (9) organizational experiences related to education and social and (10) other achievement related to education field (Samani, Dasuki, Mukhadis, Basuki, Wagiran, Suyud, Riyanto, et al., 2010). These components reflects to the four here minimal competencies a teacher should have (Baedhowi, 2009). These competencies are:

(1) Professional competency,

The academic competency is an absolute requirement for a teacher. This competency is defined as the ability to master and comprehend the subject material and substance that she taught. Baedhowi (2009) described that a teacher must possess the understanding of the subject matter in depth based on the education program and curriculum, and coherently understand the methods and concepts if the subject matter. This competency can be measure by testing their ability in answering the questions related to the subject material and substances and their ability to use the different multimedia and teaching methods related to the subject such as ICT (Gultom, 11 April 2010).

A good teacher is required to cope with the subject substances and understand how to use the knowledge to implement the appropriate learning based on the curriculum. Moreover teachers are required to be actively seeking new knowledge. In results an effective and delightful learning process can be created.

This competency is assessed by the academic qualification, education and training, teaching experience, teaching planning and implementation, academic achievement and teacher professional development.

(2) Pedagogic competency,

The pedagogic competency can be defined as a competency to plan, implement and evaluate education. A teacher should understand the purpose of the curriculum in order to deliver a good quality of education. A teacher must understand the set of objectives, standards of the subject substance, understand the methods to convey it, able evaluate the learning strategies and understand how to evaluate the student competence (Gultom, 11 April 2010).

Pedagogical competency is a teacher competency to understand the learning methods and theories, effective teaching strategy and understand the pupil growth and development in order to support the pupils learning achievement. A teacher also has to able to evaluate and notice pupil special capability in order to support and lead them to their achievement.

This competency is evaluated by the academic qualification, education and training, teaching experience, teaching planning and implementation.

(3) Social and leadership competency

A professional teacher needs to be a leader in the class in order to conduct an effective and delightful learning process. A teacher should be able to be the pupil friends and parents consultants. A good teacher should also be able to coordinate with other teachers in order to conduct a good team teaching. A good relationship and coordination with the superiors are also needed. This competency can be evaluated by the superior and supervisors assessment.

(4) Competency related to personality.

Personality competencies include the integrity, honesty, good morality, wise, sensible, democratic and fairness. A professional teacher should have a personal drive and vision to guide the pupil in reaching their goals. Therefore a competent teacher should be able to be a good example for their pupils.

The certification process for the competency test through portfolio assessment scheme is describe as follows:

1) The qualified teachers may apply and compile the portfolio. This should be done by referring the guideline book for the portfolio preparation.

2) The portfolio will be submitted to the education service agency in the district. This portfolio will be forwarded to the teacher training institute in the same rayon to be assessed.

3) Two assessors will assess the portfolios. The assessors are chosen and appointed by the teacher training institute.

4) When the portfolio assessment showed grade for more than 850 then the participant will be stated to pass the assessment. Therefore the teacher will receive their educator certification.

5) When the grade showed minimal 850 and there are some administrative deficiencies then participant should complement the deficiencies. However this group of participants be modeled in the causal relation diagram in chapter 3 as the same group of the teacher who pass the certification. This is based on a consideration that the teacher can complement the deficiencies without any help from the institutions. Thus after the administration completion, the teacher can be certified.

6) When the grade is between 841 and 849 and there is a chance to pass the certification after completes some substances, then the participant will have the opportunity to increase their grade within a specified time. The time will be specified by the teacher training institute. If the participant is not able to increase their grade within the limited time then he/she will be considered to be failed and must join the teacher education and professional training. This group is depicted in the causal relation diagram in the same group as the teacher who pass the certification. When they failed to completes the substances then they will be considered to join the group of teacher who failed the certification.

7) When the grade is lower than 850 then the participant should join the teacher education and professional training for 90 hours and follow a competence test. The training is held by the teacher training institutions in the rayon. If the participant passes the competence test, then the teacher will be certified. If the participant cannot pass the competence test then the participant will have a second opportunity to do the test. If the participant cannot pass the second test then he/she will be send back to the education service agency in their district and get some development training and education.

H.2. The process of directly giving the educator certification

Based on the Ministry of National Education Regulation no. 10/2009 on the Teacher Certification clause 2 arts (11), the teacher certification can be given directly to:

1) A teacher who already has an academic qualification of post-graduate from an accredited teacher training institution. The post-graduate degree should be relevant to the subject taught. Another qualification is that the teacher must be minimum function class of IV/b.

2) A grade teacher, who teaches in a group of student in one class, has already an academic qualification of post-graduate from an accredited teacher training institution. The post-graduate degree should be relevant to the subject taught. Another qualification is that the grade teacher must be minimum function class of IV/b.

3) A counseling teacher who has an academic qualification of post-graduate from an accredited teacher training institution. The post-graduate degree should be related to her/his duty to guide and give counseling to the pupils. Another qualification is that the teacher must be minimum function class of IV/b.

4) A school supervisor who has an academic qualification of post-graduate degree from an accredited teacher training institution. The post-graduate degree should be related to her/his duty to give supervision to the school and teachers. Another qualification is that the teacher must be minimum function class of IV/b.

5) A teacher who has a minimum function class of IV/c or has a teacher cumulative credit value equivalent to function class of IV/c.

By directly giving the educator certification scheme

The certification scheme of directly giving the educator certification is following the procedure as described in the following:

1) A teacher who has an academic qualification of post-graduate and has minimum function class of IV/b or a teacher who has a minimum function class of IV/c will prepare the portfolio.

2) The teacher training institution will verify the documents. The verification process will be executed by two assessors appointed by the teacher training institutions.

3) When the documents meet the requirement, then the participants will be certified. In the other hand, when the document does not meet the requirement then the participants will have an opportunity to join the portfolio assessment scheme.

The teacher who receives the certification in a direct way is proposed by the education service agency in their district. In the causal relation diagram, this group of teacher is also depicted to be the same group of teachers joining the portfolio assessment scheme. When the participants pass the assessment, then he/she will be certificated. Meanwhile, when the participant failed, then he/she will join the other certification scheme, which could be interpreted as joining the certification again and following the same process as the first scheme.

In general, the certification process is a collaboration of several education institutions. The collaboration encompasses the Institute for Educational Quality Assurance, the Education Service Agency in district, the Teacher Training Institutions, the Consortium of Teacher Certification and the Teachers all around Indonesia.

The Institute for Educational Quality Assurance (IEQA) or Lembaga Penjamin Mutu Pendidikan (LPMP) is an institute under the Directorate General for Quality Improvement of Teachers and Education Personnel (QITEP). It has a responsible of the data collection and funding of the certification process and the teacher education and professional training.

The Education Service Agency in district is taking care of the teacher database in its district, recruitment of the certification candidates, socializing the certification program, collecting and forwarding the certification documents to the teacher training institutions, returning the documents to the teachers after the assessment,

distributing the educator certification to the teachers and propose the teacher professional allowances to the QITEP.

Teacher Training Institutions is responsible to assess the portfolio document by involving the assessors, forwarding the assessment result to the Consortium of Teacher Certification in order to be verified, announce the result after the verification process, execute the teacher education and professional training, issuing certification and create the database on the certification assessment result. The assessors are appointed by the Teacher Training Institutions with coordination with the IEQA.

The Consortium of Teacher Certification is a consortium in the national level consists of the QITEP, DGHE and teacher profession organization is responsible to make the certification process guidelines, verify the assessment result and issue the letter for the allowances payments.

The teachers are the certification program subject which has to prepare the portfolio documents and join the teacher education and professional training if needed.

From this description, we can conclude that the certification mechanism is a very complex process involving many actors. The institutions involved in the teacher certification process can be summarized in **Error! Reference source not found.**.
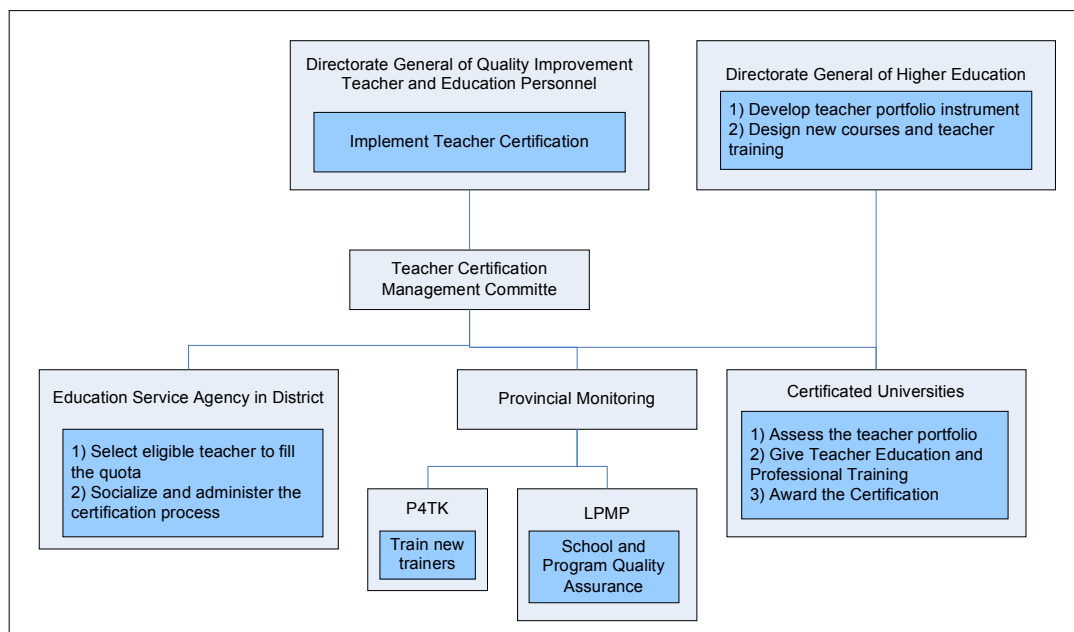

**Figure H 1. Institutions Involved in the Teacher Certification Process
(Source: Jalal, et al.(2009))**

REFERENCES

Abdulhak, I., Riyanto, Y., Jamna, J., Rusminingsih, Supriyanto, Astuti, I. D., et al. (2009). *The Roles of Higher Learning Institutions on Education for All in Indonesia*.

Alisjahbana, A. S. (2000). Otonomi Daerah dan Desentralisasi Pendidikan.

Alkaff, A. (2010). Interview on the Ministry of National Education bureacracy organizational structure reformation.

Andayani, T. (2010). Interview on teacher quality and its quality improvement policy.

Aritenang, A. F. (2008). A study on Indonesia Regions Disparity: Post Decentralization.

Baedhowi. (2009). *Tantangan Profesionalisme Guru Pada Era Sertifikasi*. Unpublished Pidato Pengukuhan Guru Besar, Universitas Sebelas Maret, Solo.

Baedhowi. (2010). Interview on Teacher Quality Improvement program.

Barry, U. P., & Brun, K. (2000). *The Dakar Framework For Action*.

Bjork, C. (2006). Decentralisation in Education, Institutional culture and teacher autonomy in Indonesia. *Decentralisation and Privatisation in Education*, 16.

Bots, P. W. G. (2002). Introduction to Policy Analysis.

CIA (Producer). (2008, 3 May 2010) World fact book. retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/id.html#

Curriculum Development and Supplemental Materials Commission, C. S. B. o. E. (2004). *Science Framework for California Public Schools*. Sacramento: California Department of Education.

Directorate-General-of-Quality-Improvement-of-Teacher-and-Educational-Personnel. (2008). *Pedoman Penghitungan Beban Kerja Guru*.

Directorate General of Higher Education, M. o. N. E. (2003). *Higher Education Long Term Strategy 2003-2010*.

Directorate General of Higher Education, M. o. N. E. (Producer). (2009, 30 April 2010) Higher Education System. retrieved from http://www.dikti.go.id/index.php?option=com_content&view=article&id=578&Itemid=230

Directorate General of Quality Improvement of Teacher and Education Personnel, M. o. N. E. (Producer). (2010) Directorate General of Quality Improvement of Teacher and Education Personnel Duties and Function. retrieved from http://pmptk.depdiknas.go.id/index.php?option=com_agora&Itemid=82

Directorate General of Quality Improvement of Teacher and Educational Personnel, M. o. N. E. (2008). *Pedoman Penghitungan Beban Kerja Guru*.

Directorate General of Quality Improvement of Teacher and Educational Personnel, M. o. N. E. (2009). *Pedoman Pelaksanaan Tugas Guru dan Pengawas*.

Directorate of Education Personnel, D. G. o. Q. I. o. T. a. E. P. (Producer). (2008, 2 May 2010) Directorate of Education Personnel Profile. retrieved from http://www.tendik.org/index.php?option=com_content&task=view&id=679&Itemid=151

Directorate of Education Profession, D. G. o. Q. I. o. T. a. E. P. (Producer). (2008, 2 May 2010) Introduction to Directorate of Education Profession. retrieved from http://www.ditpropen.net/

Directorate of Educators and Education Personnel for Non-formal Education, D. G. o. Q. I. o. T. a. E. P. (Producer). (2006) Directorate of Educators and Education Personnel for Non-formal Education Profile. retrieved from http://www.jugaguru.com/profile/23/

EFA Secretariat, M. o. N. E. (2007). *Mid Decade Assessment Indonesia*.

Eldon, E. (Producer). (2008, 7 June 2010) 2008 growth puts Facebook in better position to make money. retrieved from http://venturebeat.com/2008/12/18/2008-growth-puts-facebook-in-better-position-to-make-money/

Elley, W. B. (1976). National assessment of the quality of Indonesian education. [doi: DOI: 10.1016/0191-491X(76)90020-1]. *Studies In Educational Evaluation, 2*(3), 151-166.

Enserink, B., Hermans, L., Koppenjan, J., Kwakkel, J., & Thissen, W. (2009). Reader EPA 1121 Policy Analysis of Multi-Actor Systems. Delft: Faculty of Technology, Policy and Management, Delft University of Technology, the Netherlands.

Global Monitoring Report team, U. (2009). *EFA-Global Monitoring Report: Overcoming inequality: why governance matters*.

Gultom, S. (11 April 2010). Interview in Teacher Training Institution Role in Teacher Quality.

Gultom, S. (2010). Interview in Teacher Training Institution Role in Teacher Quality.

Harianti, D. (2010). Interview on Basic Education curriculum.

Hofstede, G., & Hofstede, G. J. (2005). I, We, They *Cultures and Organizations: Software of the Mind*
New York: McGraw-Hill.

indonesia, b. (2010). Badan Standar Nasional Pendidikan.   Retrieved 6 May, 2010, from http://bsnp-indonesia.org/id/

Jalal, F. (2010). Interview on Coordinating Mechanism to increase the teacher quality.

Jalal, F., Samani, M., Chang, M. C., Stevenson, R., Ragatz, A. B., & Negara, S. D. (2009). *Teacher Certification in Indonesia: A strategy for teacher quality improvement*.

Kumalawati, A. (2010). Interview on Teacher Current Condition in Tarakan city.

Kunaefi, T. D. (2010). Interview on Teacher Quality Problem in Indonesia and the Indonesian Government Programs to Meet the EFA Goals.

Kwakkel, J. H., Walker, W. E., & Wijnen, R. A. A. (2008). The Treatment of Uncertainty in Airport Strategic Planning: the Case of Schiphol Airport's Long-tem Vision. *Faculty of Technology, Policy and Management, Delft University of Technology, the Netherlands*.

Latief. (2010, 20 May 2010). Biar Merata, 3 Menteri Bikin SK Bersama. *Kompas*. Retrieved from http://edukasi.kompas.com/read/2010/05/20/15395496/Biar.Merata..3.Menteri.Bikin.SK.Bersama

Levitt, S. D., & Dubner, S. J. (2005). *Freakonomics: A rogue Economist Explores the Hidden State of Everything*: William Morrow.

Luschei, T. F., & Carnoy, M. (2010). Educational production and the distribution of teachers in Uruguay. [doi: DOI: 10.1016/j.ijedudev.2009.08.004]. *International Journal of Educational Development, 30*(2), 169-181.

Meutia, A. (2010, 20 May 2010). Mendiknas: Sistem Tak Bagus, Distribusi Guru Belum Merata. *Republika*. Retrieved from http://www.republika.co.id/berita/pendidikan/berita/10/05/20/116416-mendiknas-sistem-tak-bagus-distribusi-guru-belum-merata

Peraturan Menteri Pendidikan Nasional
no. 22/2006
Tentang STANDAR ISI, 22/2006 C.F.R. (2006).

Peraturan Menteri Pendidikan Nasional
Nomor 69 Tahun 2009
Tentang Standar Biaya Operasi Nonpersonalia untuk Sekolah Dasar/Madrasah Ibtidaiyah (SD/MI), Sekolah Menengah Perama/Madrasah Tsanawiyah (SMP/MTs), Sekolah Menengah Atas/Madrasah Aliyah (SMA/MA), Sekolah Menengah Kejuruan (SMK), Sekolah Dasar Luar Biasa (SDLB), Sekolah Menengah pertama Luar Biasa (SMPLB), dan Sekolah Menengah Atas Luar Biasa (SMALB) (2009a).

Peraturan Menteri Pendidikan Nasional
Tentang Pemenuhan Beban Kerja Guru dan Pengawas Satuan Pendidikan, NOMOR 39 TAHUN 2009 C.F.R. (2009b).

Ngatijan. (13 Maret 2010). Interview on teacher quality and its quality improvement policy.

Ngatijan. (2010). Interview on teacher quality and its quality improvement policy.

Nugraeni, W. (9 April 2010). Interview on teacher quality and its quality improvement policy.

Nugraeni, W. (2010). Interview on teacher quality and its quality improvement policy.

Otchet, A., & Frostell, K. (2009). *Projecting the Global Demand for Teachers: Meeting the Goal of Universal Primary Education by 2015*.

Pusdatinkomtel (Producer). (2009) Tugas dan Fungsi Kementerian Dalam Negeri Republik Indonesia. retrieved from http://www.depdagri.go.id/profil/tugas-dan-fungsi

Law on State Finance, 17 C.F.R. (2003).

Law on Local Governance, 32/2004 C.F.R. (2004).

Law on Teachers and Lecturers (2005).

Samani, M., Dasuki, A., Mukhadis, Basuki, I., Wagiran, B. K., Suyud, et al. (2010). *Pedoman Penyusunan Portofolio*.

Samani, M., Dasuki, A., Mukhadis, A., Basuki, I., Wagiran, B. K., Suyud, M. P., et al. (2010a). *Petunjuk Teknis Pelaksanaan Sertifikasi*.

Samani, M., Dasuki, A., Mukhadis, A., Basuki, I., Wagiran, B. K., Suyud, M. P., et al. (2010b). *Rambu-Rambu Pelaksanaan Pendidikan dan Latihan Profesi Guru*.

Schaik, B. v. (2009). *Indonesia's Education Policy: Enabling Innovation and Growth.* Delft University of Teachnology, Delft.

Skilbeck, M. (2006). A Global Endeavour: Education for All. *Secondary Education at the Crossroads*, 47.

Spencer, V. (2009). How Does Finland's Education Become The Best In The World? Retrieved 4 May 2009: http://schoolmatters.knoxnews.com/forum/topics/how-does-finlands-education

Stukel, D. M., & Feroz-Zada, Y. (2010). *Measuring Educational Participation: Analysis of Data Quality and Methodology Based on Ten Studies*.

Subandiyo. (22 Maret 2010). Interview on teacher quality and its quality improvement policy.

Subandiyo. (2010). Interview on teacher quality and its quality improvement policy.

Suharwoto, g. (16 Maret 2010). Interview on EFA programs and Teachers Quality Improvement program by UNESCO.

Suharwoto, g. (2010). Interview on EFA programs and Teachers Quality Improvement program by UNESCO.

Susilowati, E. (10 April 2010). *Interview on teacher quality and its quality improvement policy*.Unpublished manuscript.

Susilowati, E. (2010). Interview on teacher quality and its quality improvement policy.

Syamsury. (2010). Interview on the Teacher distribution system.

Tariyani, W. (2009). Manajemen Komponen-komponen Sekolah. Retrieved from http://manajemensekolah.teknodik.net/?p=1081

Task Force Division on Teachers for EFA, E. U. (2008). Addressing the EFA Teacher Gap: A tool to identify priority countries. Ad hoc Task Force on Teachers for EFA; UNESCO.

the Ministry of National Education, R. o. I. (Producer). (2010, 6 April 2010) Ministry Organization Structure Chart of Ministry of National Education. retrieved from http://www.depdiknas.go.id/dir_file/file.so.php?l=i

Vroege, E., & Kemperman, S. (2010). Interview on Teaching method in the Netherlands.

Wahab, R. (2010). Interview in Teacher Training Institution Role in Teacher Quality.

Watkins, K., Al-Samarrai, S., Bella, N., Liebnitz, M. P. B., Buonomo, M., Cameron, S., et al. (2010). *EFA-Global Monitoring Report 2010: Reaching the marginalized*.

Yusrizal. (2009). Menata Ulang Pendidikan Aceh. FKIP Unsyiah.

Zajda, J. (2006). Decentralisation and privatisation in education: the role of the state. *Decentralisation and Privatisation in Education*, 25.