

# Identification of Teacher Shortage:

## A District Level Analysis

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**Abstract**—This research aims at describing the adequacy of the number of civil servant elementary teachers; the suitability of teacher education background with the field being taught; and the efforts of each school to address teacher shortages. The data was obtained from 23 primary schools in District of Ngablak, Magelang, Indonesia. Focus group discussion and document analysis involved the school principals and the head of the sub-district education office. The result shows that there is still a shortage of teachers with the adequacy of teachers as follows: 5 civil servants classroom teachers, 9 civil servants Islamic education teachers and also 16 civil servants sports teachers. Based on the data, 133 teachers (89.8%) have met education qualification that indicated by holding degree of Bachelor in Primary Education. While 15 teachers (10.1%) have not matched the field of Primary Education. The findings shows that in some schools, there are non-tenure teacher recruitment to overcome teacher shortage. Furthermore, it is found in few schools, the principals are assigned to have additional tasks, to be a classroom teacher and sports teacher. In order to improve teacher quality, some schools encourage and support teacher to attend university to study in relevant area. Finally, the implication of this research suggests that the district should merge or regroup some schools in neighbouring area for efficiency. However, schools in the most remote place of the District could not be merged since it will inflict problems for students. For most practice solution may come from transferring teacher from other schools around the District of Ngablak to teach in school with teacher shortage. As most parts of the district is remote area, it is suggested to provide teacher with sufficient supports.

**Keywords**— *The adequacy of teachers, teacher shortage*

### I. INTRODUCTION

The World Declaration on Education for All (EFA) in 1990 committing countries to make better quality of education [1]. The first step in increasing education contribution to national development is ensuring that education can be accessed by every child. However, it is not only about providing access to education, but also how to create good quality of education.

Indonesia as one of developing country faces the same problem as it has been mentioned by various countries even by developed countries. Teacher shortage becomes one of the most critical issues from time to time. Teacher shortage is categorized into two levels; national or macro level and school level [2]. The macro levels range in state, province, region and district. There is an opinion that national predictions are not

always accurate caused by it is only consider macro factor. It is claimed that calculating teacher shortage should play at the school level [2].

[3] Teachers have the position of professionals at the level of primary, secondary and early childhood education in formal education which is appointed in accordance with the laws and regulations. From the explanation, it can be seen that educators are recognized as professionals. The position of educators in education is very important and they should get special attention from the government. In the perspective of society, educators are viewed as professionals. The most important thing of being professional is having high standar of performance, as well as integrity and strong commitment to serve public [4]. Professionalism is indicated by attitudinal attributes or the manner in viewing work [5]

Educators are viewed as professionals because the educators perform a profession or work according to their expertise. An educator must have the qualification of educator [3], a teacher must have academic qualification, competence, educator certificate, physical and spiritual health, and have ability to realize national education objectives. These qualifications become the benchmark in the procurement of educators, because educators are a key element in the continuity of education. Educators become a central point in every change that occurs in education. Any educational reform conducted by the government will not work if it does not involve educators.

Based on the description above, it can be clearly seen that the availability of educators to be the most important element in the continuity of education in every educational institution at this time. The availability of educators to be one of the problems that must be resolved by the Government when considering the compulsory education program implemented by the Government, with the automatic compulsory education program, the number of learners will increase in each year. The increase in the number of learners should be balanced with the availability of the number of educators who are adjusted to the minimum number of learners in each study group.

The issue of imbalance in the availability of teachers in schools, whether as classroom teachers, as well as subject teachers continues to follow without any concrete solutions starting at education, district, provincial and national levels.

The impact of this teacher distribution imbalance is one of the obstacles in the continuous development of teacher profession.

In Indonesia case, the number of qualified teachers are not distributed evenly, especially in remote area [6]. The imbalance distribution of teachers as a result of management is not based on school needs, but rather on the personal needs of teachers. Transfer of teachers is generally initiated by teachers individually based on their own interests rather than school or district interests. The Education Office is generally passive, either giving permission or not in response to a request for a transfer from a teacher. As a result, there is often a surplus of teachers in one place and lack of teachers elsewhere. Schools in urban centers usually excess teachers while rural and remote schools often lack teachers.

Ngablak District, located in Magelang, Central Java, is one of rural area in Indonesia. Surrounded by mountain and hills, most people are farmers. Most teachers are commuters, and due to the geographical situation and demographics, many schools are suffer in quality, such as teacher shortage. To determine what policy should be considered, it is necessary to have a robust planning that can be used as a reference in determining the number of teachers needed in the future.

Indonesia government has been implementing various forms of policy to solve the unequal teacher distribution. It ranges from transferring teachers from one school to another - and this is often called as the most practice solution. However, in some cases it may be better to combine two small schools into one big school (regrouping), making a small junior high school united to an existing one (One Roof School), maintaining a small school but creating staff efficiency with a multi-grade class, or appointing specialist teachers to teach in more than one school (mobile teachers). Another option is to provide incentives for teachers to teach in remote schools (incentives can be financial bonuses or career benefits). Furthermore, there is a policy to assign teacher in junior high school to teach in primary school in order to meet the needs of teacher.

However, before assorting the policy, the first step is to assess and analyse the teacher shortage. The projected needs of teachers for each year during a particular planning period should be in line with the enrollment projections, accompanied by assumptions about student study load, teacher's teaching burden, class size, and the estimated number of teachers who will retire, move or exit or continue study in the years in the designated period. The formula used is still the same with the formula used to calculate teacher needs and shortcomings as described in sufficient detail in the preceding section. This projection is based on trends and teachers' basic data several years earlier. Wilson & Pearson suggested that generally teacher shortage is indicated by the vacancy rates, and with the simplest one which is the number of unfilled vacancies for teachers [7].

The results of the evaluation and institutional analysis of teachers' schooling capacity are the basis for determining the development of the institution to meet the needs of teachers in schools, teachers' service users. The calculation of the average annual increase, repeaters per year and yearly dropouts, can be used as a basis for projected teacher supply in the next few

years. Since the graduate of the teacher education school is associated with the teacher's demand in the field, the projected supply of teachers uses the target setting approach, i.e starting with some number of graduates needed to meet optimally the teacher's demand in the field. This can take number the needs of teachers to be equal to the number of graduates who will plunge into the teacher profession by taking into account the number of graduates who did not jump into the profession of teacher. The comparison between the trends of the teacher education graduate in the last six years and the trend of the needs of teacher in the same period can provide an overview to determine the next step.

## II. RESEARCH METHOD

This research used a quantitative approach to projection calculation and it is followed by describing the projection result. It took five months in conducting this research from May to September 2016. Population in this research was 23 primary schools in Ngablak, Magelang. Documentation method was used as the data collection technique in this research. The data required in this study was school profile data which contains teachers, schools and students' data. The data was obtained from UPT Ngablak's documents. In the analyzing the data, the researcher used descriptive quantitative with percentage. All of the data obtained from UPT Ngablak which consisted of primary teachers' data in Ngablak then processed to look for the numbers of teachers both civil servants or non-civil servants, educational background, and also the number of students in order to reveal the needs of teachers significantly.

The formula employed in this research for calculating the the needed number of classroom teachers [8] as follows:

$$KGK = \Sigma K \times 1 \text{ Teacher}$$

Details:

KGK = Kebutuhan Guru Kelas or The Needs of Classroom Teacher

$$\Sigma K = \text{Number of Classes}$$

The formula for calculating the number of Islamic education teachers and Sports teachers:

$$KGAP = \frac{JTM}{24} = 7 \text{ MPix k1}$$

$$i=1$$

Details:

JTM: Number of meetings per week (in hour)

$\Sigma K$ : Number of Classes

KGAP/P: The needs of Islamic education teachers/Sports teachers

MP: Allocation of subjects on Islamic education or sports subject at one level per week (in hour)

24: Mandatory teaching time per week in Indonesia

1, 2, 3, 4, 5, and 6: 1, 2, 3, 4, 5, and 6 level

Whilst the formula for calculating teacher shortages [9] is as follow:

$$KG = KGT - (GA - GP/GK/GS)$$

Details:

KG : lack of teacher

KGT : total teacher needs

GA : existing teacher

GP : teacher who will retire

GK : teacher who due to some reasons will resign

GS : teachers who are not fully qualified and will continue their study.

### III. RESULTS AND DISCUSSION

Based on data obtained from District Education office of Ngablak, it can be known the availability of teachers in the next 5 years are as follows:

**TABLE 1 THE AVAILABILITY OF TEACHERS IN THE DISTRICT OF NGABLAH IN 5 YEARS**

TEACHER	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Class*	148	146	145	139	136	136
Islamic Education	20	20	17	17	15	14
Sports	11	11	11	11	10	10

\*including Principals who are still teaching as classroom teachers

From these data, the results obtained from the comparison of the needs and availability of teachers without regard to the qualifications of education level.

#### A. Teacher's Adequacy based on Number of Teachers

##### 1. Class Teacher

By using the standard of each study group participants in the field that is 18,594 students, the result as follows.

**TABLE 2 THE DISCREPANCY BETWEEN NEEDS AND AVAILABILITY OF TEACHER USING 19 STUDENTS PER CLASS STANDARD**

Details	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
The needs	151	153	159	162	165

**Table 2, Cont.**

The availability	146	145	139	136	136
+/-	-5	-8	-9	-26	-29

Using the standard where every study group consists of 20 students, then:

**TABLE 3 THE DISCREPANCY BETWEEN NEEDS AND AVAILABILITY OF TEACHER USING 20 STUDENTS PER CLASS STANDARD**

Details	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
The needs	140	143	148	151	153
The availability	146	145	139	136	136
+/-	6	2	-9	-15	-17

Based on the data it can be seen that in the present and next year there is a shortage of teachers, either using the standard number of students 19 or 20 per group of study. If it is observed, from year by year the number of shortages of classroom teachers tends to increase. This is due to the existence of retired class teachers and the needs of teachers have not been met by the government on the grounds of the moratorium so it is not allowed to appoint teachers. While the needs of teachers in schools cannot be postponed, in order to solve the problem, the school finally accepted the honorary teacher. Besides, receiving honorary teachers, also be done by performing double tasks, principals become the classroom teachers.

The fulfillment of honorary teachers or wiyata bakti by the school prefers those who have willingness or in other words who are interested in serving. The requirement of a linear educational qualification is not the main concern.

The needs of teachers fulfillment at the school level is filled with the appointment of wiyata bakti teachers, because there is no certainty if only waiting from the government. The fulfillment of the needs of teachers is government's responsibility by performing recruitment. However, the current policy in Indonesia has suspended civil servants recruitment for efficiency reason, included in teacher recruitment. With this moratorium, it becomes a constraint for government to meet the teacher adequacy. Meanwhile, schools are not allowed to hire honorary teachers. This phenomenon makes schools inconvenient to meet the needs of teachers. On the other hand the victims are students if there is no teacher.

## 2. Islamic education teacher

Because the curriculum of each school is not known, whether it used the 2013 curriculum or older curriculum, this research assuming one teacher per school for the data belows.

**TABLE 4 THE DISCREPANCY BETWEEN THE NEEDS OF ISLAMIC TEACHER AND ITS AVAILABILITY IN 5 YEARS**

Details	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
The needs	23	23	23	23	23
The Availability	20	17	17	15	14
+/-	-3	-3	0	-2	-1

On the table above, it can be seen that the number of Islamic education teachers are also still lack, but not as much as the lack of the classroom teachers. In order to fulfill the needs of Islamic education teachers, the schools do a policy by accepting honorary teachers/wiyata bakti or one teacher have doubled job to teach at two schools nearby.

## 3. Sports Teacher

Because the curriculum of each school is not identified whether it used the curriculum 2013 or older curriculum, as well as the unknown number of hours in each study group, this research assuming one teacher per school for the data below.

**TABLE 5 THE DISCREPANCY BETWEEN THE NEEDS OF SPORTS TEACHER AND ITS AVAILABILITY IN 5 YEARS**

Details	2016 /2017	2017 /2018	2018 /2019	2019 /2020	2020 /2021
The needs	23	23	23	23	23
The availability	11	11	11	10	10
+/-	-12	-12	-12	-13	13

Contrary to the availability of Islamic education teachers, sports teachers really lack of the human resources this year, it is more than 50%. Specifically, the shortage of teachers in school makes the school to create a policy in which classroom teachers may become the sports teachers, or a sports teacher teaches subject in two primary schools. According to the theory of human resource management, the placement/assignment of employees must meet the principles of the right man on the right place. Double job from the classroom teacher into the sports teacher is not the right thing to do, because it does not put employees in line with their areas of expertise. But the

reality requires that circumstances. Because if it cannot be fulfilled, then the students who will become victims.

## B. The Adequacy of Teacher based on the Suitability of Educational Background

### 1. Classroom Teacher

The recapitulation of teacher circumstances in Ngablak can be seen in the table below.

**TABLE 6 CLASSROOM TEACHER'S LEVEL OF EDUCATION**

Education	Number of teachers
Bachelor Degree	133
D2 Diploma	3
High School)	6
Vocational High School	2
Islamic Teacher Education	2
No details	2
<b>TOTAL</b>	<b>148</b>

From the 148 civil servants classroom teachers and principals who teach as class teachers there are 133 who have met the education qualification (holding undergraduate degree of primary education). In addition, there are 15 civil servant teachers who still do not hold their bachelor education but their educational background is only high school in teacher education and Diploma in teacher education. Scientifically, it is linear but the qualification does not meet the Bachelor Degree standard. The Head of Education Office as well as the principals do not obligate them to get their bachelor degree due to the age reason or they will retire in a short time.

### 2. Islamic Education Teacher

The number of Islamic education teachers in Ngablak can be seen in the table below.

**TABLE 7 ISLAMIC EDUCATION TEACHER'S LEVEL OF EDUCATION**

Education	Number of Teachers
Bachelor Degree	14
D2 (Diploma)	2
Islamic Teacher Education	4
<b>Total</b>	<b>20</b>

The adequacy of Islamic education teachers based on educational background is all eligible. However it is only 70%

(14) teachers who hold bachelor degree, 10% (2) are diploma and 4 (20%) are high school graduates.

### 3. Sports teacher

The needs of sports teachers in Ngablak are 23 teachers however it has just fulfilled around 11 teachers. Out of 11 teachers are only 2 persons who have not S1 sports, they are just waiting for the study completion. The two persons have already studied S1.

### C. Primary Schools' Efforts in addressing the Teacher Shortage Problem

Shortly, the principals have done many efforts to overcome the problems faced in each school. There are those who accept wiyata bakti teachers, give the existing teacher an opportunity to continue their study, and even the principals who have triple job as classroom teachers and sports teacher as well.

## IV. CONCLUSION

Based on the data and discussion that have been explained, it can be concluded:

1. The adequacy of classroom teachers, there are still lack of Islamic education teachers and sports teacher. If the teacher/student ratio 1:18 was used, in 2016/2017 there is still lack of 5 teachers (3.4 %). However, if the ratio 1:20 was used, in contrary there is the excess of 6 teachers (4.05%). While 9 Islamic education teachers (6.08%) are still needed as well as for 16 persons of sports teacher.
2. When it comes to education qualification and its field, 133 teachers (89.8%) have met the qualification that indicated by holding undergraduate degree of Bachelor in Primary Education, while 15 teachers (10.1%) have irrelevant education background.
3. Schools have been tackling the lack of teacher by recruiting non tenure teacher in wiyata bakti scheme.

Furthermore the principals have triple job at school, not just as the principal, but also had been assigned as classroom teacher as well as a sports teacher.

Ultimately, this research suggests that the district should merge some schools for efficiency. However, for schools which located in the most remote area, it will be harmful for them to be regrouped with other schools. The students in remote village may have problems in reaching school caused by this policy. Therefore for most practice solution may come from transferring teacher from other schools around the District of Ngablak to teach in school with teacher shortage. As most parts of the district is remote area, it is suggested to provide teacher with sufficient supports.

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