The Demand for and Supply of Primary School Teachers in Benishangul Gumuz Region

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This is to certify that the thesis prepared by Assefa Jano, entitled: *The Demand for and Supply of Primary School Teachers in Benishangul Gumuz Region* and submitted in partial fulfillment of the requirements for the Degree of Master of Arts (Educational Research and Evaluation) complies with the regulations of the University and meets the accepted standards with respect to originality and quality

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This thesis is my original work done under the guidance of Wanna Leka (PhD), and has not been presented for any degree to any other university and that all sources consulted for the thesis has been properly acknowledged.

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ABSTRACT

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Addis Ababa University, 2013

This study examines the trends and current status of the demand for and supply of primary school teachers in Benishangul Gumuz Region with a focus on teacher quantity and quality. Descriptive analysis of data on student enrolment and standard teacher –section ratio was used to analyze teacher demand. The supply side of the analysis mainly focused on the examination of the status of current teaching force in terms of number and quality in the region, the prevailing status of prospective graduates of Gilgel Beles College of Teacher Education, and the potential intake capacity of the college. Primary data on the opinion of informed officers and officials were gathered using Questionnaires and Focus Group Discussions. Secondary data on school age population, students' enrolment, college intake and graduation, and the teaching force is obtained from the annual education abstracts, policy documents, periodic plans and reports of the region. Tremendous increase in the number of students and teachers was recorded for the last five years. The number of students enrolled in primary schools increased from 144672 to 161914. Similarly, the total number of teachers increased from 3078 to 3949. In terms of qualification, there were 1113 qualified teachers 2006/7, and increased to 1359 during 2010/11.Thus, the demand and supply analysis shows under supply of qualified teachers and over supply irrespective of qualifications. This shows that of the total teachers in the region, only

34 percent are qualified to the level. Thus, the problem of teacher supply in primary schools of the region is not of the quantity; rather it is more of the quality.

An overview of the teacher training system in the region shows underutilization of Gilgel Beles College of Teacher Education. Of the total graduates of the college during 2010/11, only 4% of the graduates of the college were government sponsored. The rest 96 percent constitute private and self sponsored graduates who joined the college in their own initiatives. This clearly shows that the region hasn't been fully using the college for the purpose it is established. This calls for critical assessment and evaluation of the teacher training system in the region and devising possible mechanisms. Regional planners and administrators therefore, need to carry out realistic teacher management activities to achieve objectives relating to: forecasting the demand for and supply of teachers; recruit new teachers into training; upgrade unqualified teaching force in the system; implement strategies to retain teachers and make the profession attractive; and assess the effective utilization of teachers at schools.

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Acronyms

AAU	Addis Ababa University
BGRS	Benishangul Gumuz Region State
BGRSEB	Benishangul Gumuz Regional State Education Bureau
BoFED	Bureau of Finance and Economic Development
CTE	College of Teachers Education
CSA	Central Statistical Authority
ENLA	Ethiopian National Learning Assessment
EMIS	Education Management Information System
ESDP	Education Sector Development Program
ETP	Ethiopian Education and Training Policy
FDRE	Federal Democratic Republic of Ethiopia
GBCTE	Gilgel Beles College of Teacher Education
GEQAEA	General Education Quality Assurance and Examinations Agency
GER	Gross Enrolment Ratio
MOE	Ministry of Education
NER	Net Enrolment Ratio
NOE	National Organization for Examinations
RSEB	Regional State Education Bureau
PSR	Pupil Section Ratio
PTR	Pupil Teacher Ratio
TGE	Transitional Government of Ethiopia
TVET	Technical, Vocational Education and Training

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CHAPTER I: Introduction

1.1 Background of the study Area

Benishangul Gumuz Region is one of the marginalized regions in the country. It is a region with poor basic infrastructure facilities from the beginning. The region emerged from two peripheral *Awrajas*, *Metekel* and *Assosa* from *Gojjam* and *Wellega* provinces respectively. The region is inhabited with poor people, scattered settlement of 9 people per Km^2, constituting population less than one percent of the country. Almost all the expenditure responsibilities of the region have been met through Federal Grant. However, the intergovernmental grant transfer formula which is largely based on the population parameters is in an extreme disadvantage to region. This is because, the region is sparsely populated and has got less than one percent of the national population.

Contemporary educational thought holds that one of the pivotal causes of inadequate school performance is the inability of schools to adequately staff classrooms with qualified teachers. The relationship between teacher supply and demand has been described as a "puzzle" based on "the interaction between quality and quantity" (Smith-Davis and Billingsley, 1993: 205). The "demand for teachers" deals with the aspects that determine the number of teachers needed for educational systems to respond to the education needs of the entire school-age population. The "supply of teachers" deals with the factors that define the number of individuals eligible and willing to teach in current educational systems (Santiago, P. 2002: 13).

The total demand for teachers in public education is commonly defined as the number of teaching positions that have been established and funded, while the total supply of teachers is defined as the number of eligible individuals available from all sources who are willing to supply their services under prevailing conditions (Boe and Gilford, 1992). Ideally, teacher demand is

balanced by an adequate supply. Teacher shortages are, of course, the result of either exceptional high demand in relation to supply and/or exceptionally low supply in relation to demand. An inadequate supply of teachers in relation to demand inevitably results in a shortage. The rationale for analyzing teacher demand and supply is drawn from the theory of education planning that the government is interested in spending money on education for the reason that, there is a public demand to be satisfied as well as a need of the economy for skilled and qualified manpower.

1.2 Statement of the Problem

There has been marked increase in student enrollment and consequent proliferation of primary schools in all parts of the region. This brought about the increased demand for more qualified primary school teachers in the region. However, due to the scattered settlement pattern and poor infrastructural facilities in the region, many development endeavors in the region seems to run cost ineffective. For instance, most of the schools in the rural areas of the region are small in size that qualified teachers are underutilized. It is therefore, entirely appropriate for education authorities, policy makers, administrators, and practitioners alike to clearly examine the extent of teacher demand and supply and plan accordingly. This will help to improve teacher quality and efficiency of resource use while simultaneously maintaining a sufficient supply of teachers to meet demand.

In its strategic plan and ESDP IV (2010) document, the Regional Education Bureau expressed lack of well articulated gap between the number of qualified primary school teachers and the demand placed upon them by the regional education system as a major problem of teacher management. This is a critical problem in the region, which if left unchecked well ahead, could most likely lead to wastage of the scarce resource in general and unregulated flow of teachers in

particular. This unregulated flow of teachers could result into either shortages or surplus. The shortage of teachers typically translates into either larger class sizes or the hiring of less qualified candidates which highly compromise quality. On the other hand, surplus of teachers translates into unemployment, underemployment, and wastage of scarce resources with highest opportunity cost.

One of the fundamental responsibilities of policymakers and administrators in education is to assure that all teaching positions in schools are filled by qualified teachers. In continuing efforts to fulfill this responsibility, they benefit from basic information about the extent to which past initiatives have succeeded and/or failed. The types of information that should be useful to policymakers and administrators to gain a better understanding of the problem of increasing teacher demand and shortages include: trends over time in the growth of demand, trends over time in the supply and shortages, relationships over time between growth in the number of students enrolled in primary schools and growth in the demand for teachers, differences in the demand and shortage of teachers as a function of the level of students served, and trends over time in the growth of demand for qualified teachers in comparison with total number of teachers.

This study provides analysis of the demand for and supply of qualified primary school teachers in the region so that the optimum balance would be maintained. Thus, analysis of the status of the current teacher demand and supply in the region and efficiency of the regional education system to adequately staff its primary schools with qualified teachers constitute the first problem of this study. Moreover, the region established Gilgel Beles College of Teacher Education to train and provide qualified primary school teachers to the region. The paper also examines the effectiveness of Gilgel Beles College of Teacher Education – the region's only college of

teacher's education to supply qualified primary school teachers. Thus , the question as to how the region has been making use of the college with respect to its original mission of providing qualified graduates to the education system constitute the other problem of the study. To this end the study attempts to answer the following research questions;

1. What is the status of demand for and supply of primary school teachers in Benishangul Gumuz Region?
2. What are the determinants of teacher demand and supply in the region?
3. Is the region likely to face gap between the demand for and supply of Primary school teachers? How will the gap (if any) be understood and articulated?
4. Is Gilgel Beles College of Teacher Education being used to its optimum capacity in training and development of teachers as stipulated

1.3 Objectives of the study

1.3.1 **General Objective**:

The general objective of this study is to examine the status and trend of primary school teacher demand and supply in Benishangul Gumuz Region.

1.3.2 **Specific Objectives:**

- Analyze the status of demand for and supply of primary school teachers in Benishangul Gumuz Region.
- Explore factors determining teacher demand and supply in the region.
- Examine the nature and extent of teacher demand and supply in the region.
- Assess the gap in expected capacity of Gilgel Beles College of Teacher Education to train and develop teachers and actual practice.

1.4 Scope of the Study

The study focused on the assessment of the demand for and supply of primary school teachers in Benishangul Gumuz Region. It examined the factors that determine the demand for and supply of primary school teachers in the region, status of the school age population in the region which is the potential demand for education and teachers, the current stock of teaching force available at primary level, the proportion of qualified teachers at primary school level, and the capacity of Gilgel Beles College of Teacher education –the only CTE in the region to supply qualified graduates to the desired level. The data of recent five years (2006/7-2010/11) was used for the study for the reason that the researcher believes it as the period the regional education bureau started paying attention to the quality of data and gather data using most reliable instruments.

1.5 Limitation of the Study

The discussion of teacher demand and supply has so far been in terms of the total teacher force and overall teacher-pupil ratios. If teachers and teaching jobs were completely undifferentiated, it would be satisfactory to work at this aggregate level, for teachers would be infinitely substitutable for each other. In fact, however, teaching jobs are to some extent differentiated and many of them can be performed only by teachers with certain characteristics. The market for teachers is not one unified market, but a collection of partially self-contained smaller markets. Thus the generalization from such aggregate picture of teaching force may not equally apply to all subject matter teachers and geographic distributions. Moreover, due to the unique characteristics of Benishangul Gumuz Region in terms of its location, size, demography, socio-economy, and overall development level, the conclusions reached in this study based on the available data may not be fully generalized to other regions in the country.

1.6 Significance of the Study

The significance of teacher demand and supply study is manifold:

- It provides information about the supply of primary school teachers and expected changes in the pattern of their demand to planners, policy makers, and other education stakeholders.
- Teacher supply and demand information can help leaders at each levels target their programs and policies to the most significant problems in their particular spheres of influence.
- It helps *Woredas* identify differences in the number and qualifications of teachers serving in their schools.
- Teacher supply and demand study helps policy makers design targeted policies and use their scarce resources in targeted ways to ensure that all students are taught by high-quality teachers all of the time.
- A supply and demand study provides further information about the distribution and supply of those teachers and expected changes in patterns of demand.
- It helps to identify current strengths and weaknesses in the teacher supply, highlights potential issues related to the future supply and demand for teachers so that these issues can be addressed proactively.
- With supply and demand information, regional level policymakers can craft policies to solve teacher quality problems based on *data* instead of *anecdotes*.
- To sum up, this study will help the policy makers and relevant authorities regulate the production of teachers in the region and ensure that teachers are produced in right quantity and quality given the resource constraints in the region.

1.7 Organization of the Study

This study was organized in a way that it comprises five chapters. Chapter one is the introduction part consisting the background, statement of the problem, objectives, limitation, and delimitation of the study. Chapter two is a review of related literature that is relevant to the problem under study. Chapter three deals with the design and methodology of the study, chapter four presents the analysis and interpretation of data and chapter five contains the summary of findings, conclusions and recommendations.

1.8 Definition of Terms

For the purpose of this study the following terms were operationally defined as follows:

1. **Qualified Teachers**: Individuals who possessed at least the minimum teaching qualifications as prescribed by national policy on education.
2. **Demand**: The quantity of teachers that is required for effective implementation of primary school programme.
3. **Supply**: The total number of available individual with at least minimum teaching qualification and are ready to take up teaching job.
4. **Over supply**: a situation whereby available qualified teachers are more than the required teachers for the primary schools.
5. **Under supply:** a situation where there is shortage of qualified teachers to teach in primary schools.
6. **Enrolment**: the total number of students admitted to school at a given period.
7. **Teacher- Pupil ratio**: The number of pupil assigned to a teacher in a class.

Chapter Two: Review of Related Literature

2.1 Teacher Demand

Teacher demand' may have several different meanings, which is important to distinguish. First, it may connote 'needs', used rather loosely in a layman's sense to refer to what is desirable. Thus, one may say that a school or education system needs more teachers, meaning that for them to have more teachers is a desirable end in itself. This should be distinguished from a second more instrumental interpretation of 'demand' as 'requirements'. In this case demand for teachers is being defined in manpower planning terminology as the numbers technically necessary to produce a certain specified output from the education system. Without teachers of a certain number and description, the output target could not be attained. When the official in an education ministry's planning office speaks of teacher demand, his meaning is often a mixture of the layman's and the manpower forecaster's usage. He is often referring to the number of teachers needed to serve a given number of pupils at some stated pupil-teacher ratio. This ratio is often itself an education policy target rather than a technically specified input necessary for the achievement of stated pupil behaviors (Williams, 1979).

There is however another important third sense in which 'demand' is used. Economists understand demand to mean market demand. To an economist the 'demand' for teachers is a function of the price of teachers and it signifies the number of teachers that employers are prepared to hire for work at current pay rates. The economist draws our attention to the fact that in a world of scarce resources the amount of any commodity or service, such as teaching, that the consumers are prepared to buy depending on its price. If teachers' salaries raise relative to other prices in the economy then, other things being equal, fewer will be employed.

2.1.1 The static Vs Dynamic Aspects of Teacher Demand

a. ***The static Perspective of Teacher Demand***

The static perspective considers teacher demand in terms of the determinants of the size of the teaching force at any given moment. Basically the total size of the teaching force requirement in a given educational setting can be represented as the product of two factors; the number of learners to be enrolled, and the teaching technology in use, resulting in a pupil-teacher ratio. Neither of these factors is altogether technically predetermined; each is largely amenable to policy decision, with a range of alternative choices available to the policy-makers. The choices made will reflect the social and cultural values of a society and the strength of different interest groups; and they may also be influenced by the climate of international opinion. They will very much depend on economic factors—the cost of educational inputs and, in particular, of teachers' salaries; the share of the total cost of education that government is to meet from public resources, and the size of the private sector in education; the overall resource availability, both public and private, for educational purposes; and the assessment made of the contribution that education will make to economic growth.

The number of learners to be enrolled is the product of three key variables: the ages and length of attendance prescribed; the population of school-going age; and the enrolment ratio. *The ages and length of attendance* are prescribed by a country's school structure and its educational laws and regulations. Practice on those matters varies enormously between countries. Some countries have only three grades at the primary stage (e.g. Nepal) and others have as many as eight (e.g. Malawi); the age of entry in some countries is 5, in others 6, 7 or 8, while many countries in practice permit entry at many different ages; some countries have compulsory school attendance, others not; and the length of compulsory education varies enormously (Williams, 1979).

*The population of school-going age: T*he population in the age group designated as corresponding to any particular educational stage sets a theoretical ceiling on the level of enrolments in that stage. In practice, however, this ceiling may be exceeded if there is under-age or over-age enrolment or if there is much repeating.

The enrolment ratio: represents the proportion of the relevant age-group which is actually enrolled in school. It reflects both the intake rate and progression (promotion, repeater and drop-out) rates. These are importantly affected by government policies of two kinds. First, there are policies to determine or influence the demand for education, e.g. whether education is to be made compulsory, whether legal provisions regarding compulsion are actually to be enforced, whether education is to be fee-free for the students or not. It will be clear from this list that demand is not a factor entirely independent of government control. The second sets of policies are those on the supply side, affecting the number and type and distribution of places actually made available. Included among these supply policies are the rules ministries of education make about under-age and over-age entry, and about repeating.

The educational technology in use is the key to the output-labor ratio in education (pupil-teacher ratio) and enables one to calculate teacher requirements from pupil enrolments. In the present context 'educational technology' does not refer narrowly to equipment, devices and gadgets: rather it embraces the broad areas of curriculum content, pedagogical method and educational organization.

b. The Dynamic Perspective

So far teacher demand has been considered from a static point of view in terms of the determinants of the size of the teaching force at any given moment. Demand for teacher can be

also viewed in dynamic perspective as development demand, special replacement demand, and normal replacement demand considering the flow of teacher over time.

Development demand: Changes in the size of the teaching force, arising from growth or decline in enrolments or from changes in the way teachers are used in the education system, constitute development demand. Such changes may normally be expected to result in increased demand for teachers, because of population growth and higher participation rates in education, and because countries as they develop hope to improve staffing ratios. But there is of course no inherent reason why the changes should be in that direction. Quite a number of countries now foresee a smaller teaching force in future, for either demographic or financial reasons.

Growth or decline in the numbers to be taught would be the outcome of changes in one or more of the following variables: (1)The lengthening or shortening of school courses, or a change in the entry or leaving age, will directly affect enrolments. (2) The growth or decline of the numbers in the age group is likely to be still more important. In many developing countries it is necessary to produce enough extra teachers each year to cater for additional children just to maintain the same enrolment ratio as at present. In other areas of the world, such as parts of Western Europe and the United States, on the other hand, the annual number of births has been dropping. (3) Rising or falling enrolment ratios are the third major determinant of changes in the numbers to be educated. If, for example, a programme of universal primary education is to be announced, or fee levels are to be reduced, enrolment ratios will rise and the consequences for teacher demand will be profound (Williams, 1979).

Changes in educational practice, affecting future pupil-teacher ratios, will be the other determinant of 'development demand'. Such changes may arise from professional conviction about the educational efficacy of some innovation, such as the introduction of new subjects to the

curriculum, or of new ways of using teachers. For example, a decision to introduce more practical subjects would probably require smaller learning groups, as would additional remedial classes for slower learners, and a higher teacher requirement would result.

O n the other hand, changes in the pupil-teacher ratio may sometimes simply reflect availability or shortage of money rather than professional judgments. There is in any case a constant tension between the educators and economists over whether 'improving the pupil-teacher ratio' is to be interpreted in an educational sense as meaning *fewer* pupils per teacher, or in a cost-reducing sense meaning *more* pupils per teacher (less teacher cost per pupil). If the claims of some researchers that learning achievement is not adversely affected by larger learning groups were validated, the financial advantages of higher pupil-teacher ratios might well carry decisive weight with the policy-makers.

Special replacement demand: These programmes, arising from the deliberate intentions of the managers of the system, generally aim at replacement of foreign teachers by nationals of the country or of professionally untrained or unqualified teachers by qualified ones. This presupposes that those to be replaced are on temporary terms and can in fact be asked to leave, on being given due notice of termination of their services. In a few instances it may be found that expatriate or unqualified teachers in fact have permanent and pensionable appointments, and that the replacement programme cannot apply to them all. For unqualified teachers 'replacement' may mean not summary dismissal, but being given the opportunity to enter teacher-training colleges; or they may be offered part-time in-service courses by correspondence, radio, etc., to upgrade themselves to qualified status while teaching. In some countries this process of gradual 'internal promotion' of unqualified teachers to qualified status is a recognized feature of the system. It

necessitates rather careful accounting of teacher flows, since such teachers may change status without ever leaving the teaching service

In drawing up the replacement programme the crucial question to be decided is the length of the period over which replacement is to take place; this determines the required annual flow of new teachers for this purpose. The 'change of gear' involved in starting and completing replacement programmes can dislocate teacher supply facilities unless carefully phased. A gradual phasing in and out of replacement will obviously put less strain on the system than an abrupt start and finish.

A final point to note on replacement programmes is that the desirability of complete replacement of temporary categories of teacher is not wholly self-evident. Quite apart from the possibility that they may be cheaper to employ, temporary teachers are also often more willing to serve in difficult posts. To keep a pool of temporary appointments in a teaching force (even if the individual incumbents of those temporary posts change) can provide a much needed flexibility in responding to changes in demand arising from unpredictable trends such as population shifts. There is much to be said for planning a teacher force with only 85-95 per cent permanent and pensionable employees, rather than aiming for the full 100 percent (Williams, 1979).

Normal replacement demand: The stock of teachers is liable to 'natural wastage'. Even when there is no development demand and no special replacement programme, it will still be necessary to recruit new teachers to maintain and renew the stock. Otherwise death, retirement, resignation and illness will take their toll and the number of teachers will decline.

Thus, the total demand can be calculated from the number of teaching positions to staff classrooms, meaning, the number of teachers retained plus new demand. Where number of teachers retained equals number of teachers from previous year minus attrition (retirement,

termination, death or disability, and sometimes mobility), and new demand equals number of additional teachers needed to staff schools - to cover changes in enrolment, vacancies due to attrition, and adjustments for resource and policy changes (Dolton 2006).

2.1.2 Factors Affecting Demand for Teachers.

The demands on schools and teachers are becoming more complex. Society now expects schools to deal effectively with different languages and student backgrounds, to be sensitive to culture and gender issues, to promote tolerance and social cohesion, to respond effectively to disadvantaged students and students with learning or behavioral problems, to use new technologies, and to keep pace with rapidly developing fields of knowledge and approaches to student assessment. Teachers need to be capable of preparing students for a society and an economy in which they will be expected to be self-directed learners, able and motivated to keep learning over a lifetime. The factors that affect demand for teacher are the following:

The Demographic factor: Demand for teachers is determined to a great extent by the size of the school-age population. In fact, changes in the age structure of the population may have far-reaching effects on the requirements for teaching staff.

Teaching Technology: Another major determinant of demand for teachers is teaching technology, namely average class size and teachers' teaching loads (Teaching Technology). These two factors together with the average required number of learning hours per student define pupil-teacher ratios.

Enrolment and retention rates: Enrolment rates in the age-range for which education is not compulsory are another determinant of total enrolment levels and thus influence demand for teachers. This factor is affected by the level of educational returns to schooling as dictated by local labour market conditions.

Another element influencing student enrolments for each grade level is the level of grade retention in each country. No data are available about such factor. Retention levels in each country depend on established academic standards that define requirements for passing from one grade level to the next.

Required learning time for students: Another decision of educational authorities concerns the required time for learning activities for students. Such requirement is another component defining the needed amount of teaching services.

Policies pertaining to curriculum: The definition of the curriculum to be taught in schools has direct impact on the relative demand for teachers in specific subject fields. In fact, the relative amount of time to be spent in specific subjects defines the relative demand for teachers with a given specialization. In addition, graduation requirements or even entrance requirements of colleges and universities define whether more course work is to be developed in given areas such as science or mathematics.

Students' preferences over elective courses and educational programmes: As shown above, part of students' curriculum is flexible. In this way, students' preferences over elective courses also play a role in defining the type teachers that school systems need. Many factors can influence students' choices of courses, including high school graduation requirements, college entrance requirements, government support for science and mathematics education that motivates schools to encourage enrolment in these subjects, and fashions or tastes on the part of students, their parents, and peers for certain subjects. Along the same lines, the choice of students over educational programmes (for example, general versus vocational) is another channel through which students' preferences impact the demand for specific types of teachers.

Parents' preferences between public and private education: Finally, in assessing the demand for public school teachers, a major element is related to parents' preferences between public and private education. Changing preferences for private school enrolment can greatly impact pubic school demand. In general terms, teacher demand is a product of student population and policy decisions about staffing and class size.

2.2 Supply of Teachers

Supply of teacher is defined as the number of individuals who acquired skills necessary to qualify as a teacher, and who are willing to provide teaching services given a specific set of incentives. Teacher supply is equal to the number of teachers which includes teachers retained in the school from the previous year, new teachers from training institutions, foreign teachers who migrate to the area and former teachers re-entering the workforce (Harris and Adkinson, 2003).

Basically the supply of teachers at any moment in time consists of the teachers serving in the schools, plus those who are on the payroll but on temporary release for in-service training or approved leave. The total supply of teachers may not necessarily equal the demand; there may be oversupply, with educational institutions staffed above their norms. The composition of the teaching force may sometimes be regarded as unsatisfactory, so that although supply may quantitatively equal demand in terms of overall numbers, it may be considered unsatisfactory in qualitative terms. This is the case when many unqualified teachers are in service, or when particular areas of the curriculum such as mathematics either have to be dropped through lack of teachers, or are being taught by wholly inadequate staff.

It is essential for sound planning that the educational authorities have at their disposal full information about the size and characteristics of the existing teaching force and its distribution between different types of school. This is so for several reasons. In the first place it makes

possible a comparison with demand and allows the adequacy of existing supply, and the efficiency with which it is used and distributed, to be assessed. Second, to the extent that the teaching force in fact consists of several sub-populations each with characteristics of its own, future supply can only be projected at all accurately if calculations are made on a disaggregated basis. Third, the annual budget projections and sound financial planning depend on accurate information about the teacher stock. All this may seem obvious, but it is nevertheless surprising how poor the state of teachers' records and of statistical data about the teaching force is in a great many countries.

Significant improvements in teacher supply could be attained by better planning and regulation of teacher training, through forecasts of the number of newly trained teachers required, monitoring of teacher attrition on an annual basis for each level and subject specialization, and adjustment of the entry to teacher training on annual basis in response to analysis of requirements and attrition (Dolton, 2006).

The supply of teachers should be considered as stocks and flows. The stock of teachers is another name for the teacher force: teacher flows include both outflows (wastage from various causes) and inflows (new recruitment, re-entry). It is just possible to conceive of an education system which was running down at such a pace that the existing teacher stock, continuing from year to year on a depleted basis, constituted a sufficient supply to meet diminishing demand. In that case no new recruitment would be necessary. Inflow consists of returners, initial trainees graduated from CTEs, Re-entry of qualified teachers, and recruitment of unqualified personnel, National service arrangements, and foreign labor market.

a. Teachers Turnover

Teaching force is a wasting asset, subject to constant depletion of a number of distinct kinds such as death, retirement, resignation, dismissal in case of misconduct, temporary withdrawal, and re-designations within the education system as supervisors and education officers. Turnover refers to the annual rate of teachers leaving their particular school post. Thus turnover would include not only wastage, but also the lateral movement of teachers between identical posts in different schools. This is extremely important from the point of view of stability of school staffing and the sense of permanence that a school community may have. Individuals will become or remain teachers if teaching represents the most attractive activity to pursue among all those activities available to them. By *attractive,* means desirable in terms of ease of entry and overall compensation such as salary, benefits, working conditions, and personal satisfaction. These elements of attractiveness are the policy levers that can be manipulated at the school, woreda, or regional levels in order to bring supply in line with demand.

The factors that compel teachers to leave the teaching profession include low social status accorded to the profession; low salaries and in adequate economic incentives; lack of career prospects in comparison with other professions; poor working conditions such as crowded classrooms; lack of teaching materials, the professional and social isolation of rural areas and administrative inadequacies that lead to poor moral of teachers.

Most of the reasons that compel teachers to leave the profession also apply for the movement of teachers from school to school. The major factors in this regard however pertain to school environment related factors (extrinsic factors) such as community apathy, problems of social integration, administrative inadequacies and poor working conditions. The community in which the school is found plays an important role in sustaining a teacher’s stay in a given school.

Among these are the social status of teaching in the community; the level of receptivity; the teacher's ability to relate to the local culture; the availability of social amenities such as safe and affordable housing; health and educational facilities for self and family and entertainment opportunities.

In Ethiopia, teacher attrition has been an age old problem. An exodus of teachers to other professions is as old as the educational system itself. Recent studies have indicated the seriousness of the problem in the system in general (Getachew, 1999, Manna and Tesfaye, 2000; Befekadu, 2001). The reasons for leaving the profession included low salary, low social status of the profession, unfavorable working conditions in the school, difficulties of rural life, isolation factor and the absence of further educational opportunity (Aklilu, 1967; MOE, 1986; Ayalew, 2006).

The movement of teachers from school to school (region to region) on their own will is however a recent phenomenon. Before, the introduction of decentralization teachers were moved from school to school by a transfer system based on years of service (Ayalew, 2006). Employment opportunity within the profession was also minimal since there were no private schools. The decentralization has abolished the transfer system. On the other hand the establishment of private schools has opened wide employment opportunity for teachers to abandon the region of their deployment (Befekadu, 2001).

Research on employee turnover is extensive and has examined a very wide variety of aspects of employee stability, turnover, and mobility, with, at times, inconsistent findings However, consistently running throughout virtually all of this literature is the premise that employee turnover is important because of its link to the performance and effectiveness of organizations.

On the one hand, researchers have found that a low level of employee turnover is normal and efficacious in a well-managed organization.

Studies on teacher supply and demand report on a normal attrition rate amongst older teachers but a high attrition rate among younger teachers. Arends and Phurutse (2009) explain that the problem lies with lack of formal structures, policies and strategies for teacher retention and dealing with unfavourable teaching conditions beginner teachers are exposed to. A growing desire for teachers to leave the profession is also aggravated by low morale, low levels of job satisfaction, unpleasant working conditions (Shalem & Hoadley, 2009) and high levels of job stress correlated with time pressures, educational changes, administrative problems, educational systems, professional distress and pupil misbehaviour (Peltzer et al. 2008).

2.3 The conceptual framework

The framework for analyzing teacher supply and demand is drawn from the theory of education planning that the government is interested in spending money on education for the reason that, there is a public demand to be satisfied as well as a need of the economy for skilled and qualified manpower. The frame work would help to fully understand the causes and consequences of teacher supply and demand problems. It guides the proper analysis and examination of the level of demand, potential supply as well as the extent of implementation of strategies relating to teacher recruitment practices at regional level. The “demand for teachers” deals with the aspects that determine the number of teachers needed for educational systems to respond to the education needs of the entire school-age population. The “supply of teachers” deals with the factors that define the number of individuals eligible and willing to teach in current educational systems (Santiago, P. 2002, P. 13).

The total national demand for teachers in public education is commonly defined as the number of teaching positions that have been established and funded, while the total supply of teachers is defined as the number of eligible individuals available from all sources who are willing to supply their services under prevailing conditions (Boe & Gilford, 1992). Ideally, teacher demand is balanced by an adequate supply. Teacher shortages are, of course, the result of either exceptional high demand in relation to supply and/or exceptionally low supply in relation to demand. An inadequate supply of teachers in relation to demand inevitably results in a shortage.

Conceptually speaking, there is another issue that plays an important role within this framework-the issue of teacher quality or effectiveness. For a region in which the supply of teachers does not meet the demand, the resultant pressure to fill vacancies will most likely eventually induce the region to adjust salaries, benefits, or working conditions in some manner. If these adjustments are not made, or if the region's resources are so constrained as to make them prohibitive, one of two scenarios will ensue—either (1) the region will face a persistent shortage of teachers that could, in fact, grow if vacancies are not filled and existing teachers must take on greater workloads, thus decreasing the attractiveness of teaching even further; or (2) the region will lower its standards of quality and hire less qualified individuals to serve as teachers. By 'standards of quality', we mean any set of qualifications that the region uses to determine entry into teaching.

2.4 Teacher Quality

The issue of teacher quality is integrally related to the interplay of supply and demand. Since not all teachers are alike, quality is an important variable that can be adjusted by policymakers in their efforts to bring supply in line with demand. Although schools and districts would prefer teachers of the highest caliber if all else were equal, in reality trade-offs exist when resources

must be allocated among competing needs. Research shows that what teachers know and what they are able to do has a significant impact on the academic performance of their students. As stated in recent McKinsey study, “The quality of an education system cannot exceed the quality of its teachers” (Barber and Mourshed 2007, 16). So that maintaining teacher quality should be at the top of public policy.

Much of the contemporary work on measuring teacher supply and demand defines quality in terms of the teachers' credentials. That is, a teacher is qualified to teach if he or she is *certified* in the area in which he or she is teaching. Quality of teacher’s matters but it is hard to predict who is going to be a good teacher just by considering observable characteristics. Unobserved (or unmeasured) factors such as verbal ability, pedagogical skills, ability to convey ideas in clear and convincing ways, ability to work in teams, ability to use a wide range of teaching strategies, enthusiasm, and motivation, are all extremely important. Unfortunately, the lack of indicators of teacher quality has hindered researchers’ attempts to assess the importance of teacher quality on student outcomes.

There is strong consensus around the idea that teacher quality is indeed extremely relevant for student achievement. However, far less consensus exists when it comes to define a good measure for teacher quality. According to Handshake (1997), available evidence indicates that the direct measures of teacher quality account for little of the variation in classroom performance. However this is not to say that these measures have no explanatory power.

The several studies that look at the impact of teacher quality on student outcomes have used many different observable characteristics of teachers to proxy for teacher quality. The most common are: Teacher Education/Subject-matter knowledge, teacher certification status, academic tested ability, and degree of in-service training.

While it is both extremely difficult and controversial to quantify the effects of the multiple factors that influence student performance, studies almost universally demonstrate the importance of the quality of teachers. Ground breaking research by Sanders and Rivers (1999) on the Tennessee Value-Added Assessment System (TVAAS) estimated the impact of the quality of teachers on student performance. The study found that if average 8-year-old students (scoring in the 50th percentile on a standardized examination) were given teachers of varying qualities, their performance levels diverged dramatically. Specifically, one group was given high-ability teachers (top 20 percent) and the other group; low-ability teachers (bottom 20 percent). After three years, the performance of the two groups had diverged by more than 53 percentile points. Thus, by age 11, the upper group was scoring in the 93rd percentile and the lower group, in the 37th percentile. This research also indicated that as teacher quality improved, lower achieving students benefited most significantly.

Good teachers are able to motivate students by stimulating their interest in the subject matter and increase their willingness to participate fully in learning activities. This goal may be achieved in ways related to the particular methodology adopted, the relevance of the content to the lives of the students, the interest in the topic that the teacher can generate among students, and many other factors related to personality and training.

The manner in which a teacher delivers lessons can have a remarkable impact on the concentration span and learning rate of students. In turn, teacher delivery has an impact on the test scores that students can achieve. A skilled teacher can usually stimulate interest in even the most difficult material by their mode of instruction, commitment to the students, and management of the class. Of the factors that contribute to education quality at the local level, quality of teaching is recognized as the key, the factor without which other quality inputs are

unlikely to be successful (ADEA 2004; ADEA 2005; Anderson 2002; Boyle et al. 2003; Le Czel 2004; UNESCO 2004; UNESCO 2006; USAID/EQUIP1 2004; USAID/EQUIP2 2006).

A recent study of teacher quality and teacher professional development in Ethiopia carried out by researchers in Addis Ababa University, under the USAID/EQUIP1 Leader Award examined teachers' and principals' perspectives on education quality. This study underlined quality of teachers in terms of appropriate subject matter knowledge and pedagogical skills, as a crucial factor determining the quality of education (Asgedom et al. 2006).

2.5 Quality of teaching force in Ethiopia

In addition to sufficient teachers, qualified/trained teachers are also important to the education system. According to national standards, the primary education (1-8) requires teachers with minimum qualification from College of Teacher Education (CTE). The table below shows the proportions of qualified primary school teachers at a national level for the two cycles of primary education. It is noted that there has been a rapid growth in qualified teachers for the upper primary (5-8), but a decline in lower primary (1-4). This decline is due to a policy change so that teachers with Training Institution (TTI) certificates are not considered as qualified teachers for the first cycle (1-4) primary from the year 2002 E.C (2009/10) onwards. Compared to the previous year the qualified teacher for the current is increased by 4.6

Table 1. Percentage of Qualified Primary School Teachers in Ethiopia

Year	Grades (1-4)			Grade (5-8)		
	Male	Female	Average	Male	Female	Average
2006/07	96.4	96.3	96.3	52.2	56.8	53.4
2007/08	97.0	97.5	97.3	64.1	72.5	66.3
2008/09	89.4	92.3	90.8	69.6	76.8	71.6
2009/10	14.6	16.6	15.5	82.4	76.8	77.8
2010/11	18.3	22.7	21.1	83.1	83.8	83.3

Source: MoE Annual abstract (2010/11)

Teachers have to be knowledgeable in their content areas and extremely in a wide range of teaching approaches to cater for the divers learning needs of every student. Despite the fact that different studies indicated teachers have critical gaps in competence, teaching skills and methodologies. The impact study conducted (by Lund University 2005 and Haramaya University 2007) On English Language Improvement (ELIP) indicated that teachers need intervention to improve their proficiency and pedagogical skills in English.

Similar to this, the national learning assessment of grade 8 students 2008 showed that students' achievement was below the standard. The Science and Mathematics Education of Ethiopia (SMASEE), 2011 report also showed that mathematics and science teachers have lack of the necessary facilitation skills to lead group discussion, question and answer activities, demonstration skills, planning effective lesson plan and generally lack of content mastery. In addition to this, other filled visit reports showed results in the same way. If similar studies conducted on other subjects, one can assume that the result wouldn't be far from this.

As whole, teachers share a significant responsibility in preparing young people to lead successful and productive lives. Qualified and committed teachers are essential since it is in the classroom that the real teaching-learning takes place. Teacher quality is the single most important in-school

factor influencing student achievement. Effective teachers can be a source of inspiration and, equally importantly, provide a dependable and consistent influence on young people as they make choices about further education, work and life. Consequently, internationally and locally, education systems are developing professional standards for teachers to attract, develop, recognize and retain quality teachers.

As an integral part of ensuring quality teaching and learning, and based on national and international evidence, it is believed that developing professional standard for teachers can guide professional learning, practice and engagement. It also helps facilitate the improvement of teacher quality, and contributes positively to the public understanding of the profession. By providing explicit standards that guides teachers in their work to improve students' levels of educational achievement, the standard Framework is a valuable tool for increasing public confidence in the school education system. It emphasizes that the teaching profession requires teachers to be life-long learners who engage in ongoing professional learning during the course of their careers.

2.6 Demand and Supply in the teacher Labor Market in General

The market for teachers is unlike most conventional markets in the sense that the public sector dominates the demand for teachers and most governments are directly responsible for the supply of trained teachers. Both the supply and demand for teachers can be politically manipulated. Since the government can determine pupil-teacher ratios and maximum class sizes, and alter the size of teacher training courses, it has direct control over most of the major determinants of teacher supply and demand. More overtly, since most governments decide on the size of public expenditure on education and determine teachers' pay, they have a pervasive influence over the

market. In order for teacher labor markets to become increasingly subject to the typical market mechanisms present in most labor markets, initiatives such as school choice, increasing autonomy of schools in recruiting teachers and defining salary levels, introducing pay based on productivity, and opening the profession to international markets, would considerably help.

The demand for teachers is driven by student enrollments, class-size targets, teaching load norms, and budgetary constraints. Within the parameters set by demographics and woreda or school policies, the number of teachers that a region is willing to employ in a given year varies inversely with the cost, in terms of salaries and benefits, of employing them. Well designed recruitment and retention strategies can assist a woreda or school in achieving its educational goals while meeting budgetary constraints.

Teacher shortages occur in a labor market when demand is greater than the supply. This can be the result of either increases in demand or decreases in supply or of both simultaneously. Conversely, teacher surpluses result when supply is greater than demand. The extent to which the demand for teachers is either unmet or exceeded will generally determine the motivation for changes in policy. Thus, the interplay of supply and demand in the teacher labor market and in all other labor markets that draw individuals away from teaching will continually exert forces to develop policies that either promote change or aim for stability. The labor market for teachers is nested within and continuously influenced by a larger labor market that includes the markets for all other occupations requiring roughly similar levels of education or skill.

The need for new teachers in the coming decade is driven by projected learner enrolment and teacher retirement. Analyses of teacher supply and demand variables by policymakers can contribute substantially to the understanding of the overall dynamics of the teacher labor force

variables and could provide a database with valuable information for addressing the teacher supply issue both at local and national levels (White & Fong, 2008). Teacher recruitment and retention are two aspects of the overall labor market for teachers. From the standpoint of the education system that hire teachers, recruitment and retention policies have a direct impact on their ability to fill their desired numbers of teaching staff. From the standpoint of teachers or prospective teachers, these policies together with current market conditions have a direct impact on their decisions to enter or remain in teaching.

Evaluating whether teacher supply and demand are in balance and determining at what point teacher supply is sufficient to meet the demand for teachers is integral to planning. In addition, production and recruitment alone do not address a major source of the problem, if they do not also address the issue of teacher retention (Ingersoll & Perda, 2009). Some researchers examining the imbalance between teacher supply and demand focus on single indicators such as the number of unprepared teachers (unqualified, under-qualified, teaching out of field, or serving as long-term substitutes) and regard these vacancies as part of unfilled vacancies. The rationale is that when education departments collectively find the pool of qualified applicants insufficient for the open teaching positions in a given field (demand exceeds supply), the positions will either remain open (a vacancy) or school will staff the position with someone who is less than fully qualified (Dolton 2006).

The role of government is fundamental in the management of teacher demand and supply. Its intervention is made at several levels: central, regional, or local. The responsibility in the management of public education is shared between the different levels of government and the schools. The degree of autonomy of each of these bodies differs from one country to another.

A particularly important aspect in the context of the market for teachers is the extent to which schools directly compete for teachers. Whether a school is or not the direct employer of teachers is an issue of crucial importance in defining how competitive the market for teachers is. In most countries, the recruitment of teachers is highly centralized either at the country level, regional level, or local level.

Another way to gain insight into the effects of stronger market forces on the way schools hire teachers is by comparing public and regular private schools. After all, private schools are routinely subject to market forces and have an incentive to employ teachers who attract tuition-paying students. Ballou (1996) and Ballou and Podgursky (1997, 1998) provide a comprehensive comparison of public and private school teachers. They find that private schools value teacher aptitude more in hiring decisions than public schools do. They also find that teacher pay is less compressed and more closely related to aptitude and scarce skills (such as math and science skills) in private schools than in public schools. Ballou's conclusion is that public schools face little competition for students, and so do not invest sufficient effort in finding the best applicants for teaching jobs.

2.7 Teacher Demand and Supply in Ethiopia

Achievement of the long-term vision of transforming Ethiopia into a middle-income country demands a transformation of the economy through, among other things, conscious application of science, technology and innovation as the major instruments to create wealth. This, in turn, requires unfolding commitment to increasing the overall level of education of the population. The vision calls on the one hand for a further expansion of access to high-quality basic education and special efforts to improve the overall literacy level of the population. It demands on the other hand that human resources development be strengthened by training competent and innovative

people. Ethiopia has seen unprecedented expansion of its education system. In 1992, around four of five primary school-age children were out of school. In 1999, this figure stood at over 60%. Now, it is only one in five (MoE, 2010).

An impressive number of teachers were recruited during ESDP III. Their total number in primary and secondary education went up from 171,079 (60,902 women) in 2004/05 to 270,594 (100,680 women) in 2008/09. A Teacher Development Program was launched in order to improve teacher qualifications and professional development. The plan covered the period 2004/05-2006/07 and was later on extended through the year 2007/08. Amongst the major achievements of this program, the following are worth mentioning:

- The required qualification level of primary school teachers has been increased from a one year certificate course to a three year diploma course after grade 10, while requirements for the training of secondary school teachers have been changed from an education bachelor degree course to a degree course in a major field plus one year add-on professional teacher training.
- A special practicum program was introduced in pre-service teacher training.
- A curriculum revision has been undertaken to adapt the different teacher training curricula to the new teacher qualification requirements.

The primary school system has continued expanding rapidly during ESDP III. The number of schools moved up from 16,513 in 2004/05 to 25,217 in 2008/09, corresponding to an average annual growth rate of 11.2%. This sustained rapid expansion of schools and sections has been possible due to the successful application of the low-cost construction policy (use of local material and participation of local communities). Consequently enrolments of grades 1-8 have continued growing at an annual average growth rate of 8.0%, which led to an increase in GER

from 79.8% in 2004/05 to 94.2% in 2008/09. However the NER remains far below the GER in both cycles. In 2008/09 the NER was 88.7% in the first cycle and only 44.0% in the second cycle, as compared to GERs of respectively 122.6% and 63.1%. This has great implication to the increase in demand for the teachers.

2.8 Balancing of Teacher Demand and Supply

Evaluating whether teacher supply and demand are in balance and determining at what point teacher supply is sufficient to meet the demand for teachers is integral to planning. In addition, production and recruitment alone do not address a major source of the problem, if they do not also address the issue of teacher retention (Ingersoll & Perda, 2009). Some researchers examining the imbalance between teacher supply and demand focus on single indicators such as the number of unprepared teachers (unqualified, under-qualified, teaching out of field, or serving as long-term substitutes) and regard these vacancies as part of unfilled vacancies. The rationale is that when education departments collectively find the pool of qualified applicants insufficient for the open teaching positions in a given field (demand exceeds supply), the positions will either remain open (a vacancy) or school will staff the position with someone who is less than fully qualified (Dolton 2006).

The educational planner who is faced by actual or anticipated surpluses or shortages of teachers should closely examine the factors causing the imbalance and consider ways in which it may be corrected. There are many different determinants of the level of teacher demand, and many different sources of teacher supply. Although adjustment of teacher training output is one of the most direct ways of closing the gap between supply and demand, it is by no means the only way. Many other measures could be contemplated, which include for example the regulation upwards or downwards of school intake and enrolment, changes in the way teachers are deployed in

schools and in pupil-teacher ratios, changes in the definition of who is an acceptable teacher, new policies in relation to teacher retention and loss, different policies on replacement of temporary teachers and on attraction back of teachers who have resigned. Even as regards teacher training it is not just alterations in the size of the system that should be considered. Indeed it must be stressed that achievement of demand/supply objective of the educational planner. This objective should normally be subsidiary to the major goals set by a country for the education system. It may make little sense to achieve a teacher demand/supply balance at the cost of, say, drastically lowering teacher qualifications and increasing class size, if by so doing one imperils the prime goal of enabling pupils to learn effectively and well. It should be clear from the above that the demand/supply balance m a y in fact be struck at many different levels of demand, reflecting choices about levels of enrolment and modes of pupil-teacher classroom interaction: and that the supply target may be achieved by a wide variety of alternative measures in the areas of teacher training, alternative sources of recruitment, teacher wastage, etc.

In making its choices of measures to establish demand/supply balance, any government will naturally have regard amongst other things to political sensitivities. In case of teacher shortage, for example, it may be that a cut in school hours for pupils or the introduction of shifts might be unacceptable, whereas an increase in class sizes or employment of teachers of lower qualifications would perhaps excite less public criticism. Similarly, in the event of teacher surplus, it may not be possible to close teachers' colleges or lay off teachers: career commitments to existing personnel and concern for morale may incline governments to seek softer options allowing some overstaffing, deliberately choosing to run twenty institutions below capacity instead of twelve at full capacity, and so on.

Because of the need to honour commitments to personnel once employed, and the much greater difficulty of lying off an existing teacher than of hiring a new one, it seems wise consistently to aim somewhat on the low side in planning teacher supply. A teacher once employed represents an ongoing financial commitment which must be met year after year. Rich countries with too many teachers can find ways of dealing with the problems of absorbing (or laying off with compensation) too many teachers: but poor countries cannot afford this luxury. It is nearly always possible on the other hand to make good any small shortfalls with temporary teachers having reasonable levels of general education. Moreover, since needs change and knowledge expands and develops, one needs sufficient 'play' in the teacher force to allow the recruitment of new kinds of specialists and to alter the balance of the existing stock. If the inflow of new teachers falls to a very low point, redistribution of the teaching force either geographically or in terms of subject and other specializations becomes difficult and overall management of the teacher force becomes virtually impossible.

In general, the focus is on the mechanisms that bring supply and demand for teachers into line. The main objective is to understand how educational systems respond to imbalances between demand and supply namely when demand exceeds the available supply of qualified teachers. This analysis helps understanding of what are the implications of teacher shortages for the quality of the educational system. In the short run, school systems facing situations of excess demand can respond in a variety of ways:

Relaxing qualification requirements during hiring (Supply side): If a qualified applicant is not available to fill an open teaching position, a less qualified applicant will typically be hired. Many teachers are hired on emergency certificates (out-of-license teaching) while others are experienced teachers with poor performance records. Another solution consists of requiring

teachers to teach outside their areas of certification: teachers trained in another field or grade level are assigned to teach in the understaffed area (out-of-field teaching).

Raising teaching loads (Demand Side): The demand for teachers can be reduced and brought into line with available supply by increasing the workloads of employed teachers. This can be achieved both by increasing class sizes and by increasing the average number of classes assigned to teachers. Both approaches increase the pupil-teacher ratio. Hence, in the short term, school systems adjust to excess demand situations either by relaxing qualification requirements or by increasing teachers' workloads. Most importantly, in either case, quality suffers.

Alternatively, in situations where demand exceeds supply, it might be expected that a significant proportion of teaching positions would remain unfilled. Yet that is rarely the case. Hiring practices ensure that teachers are present to staff almost all classrooms. In this way, the immediate effect of a shortage is more likely to be a lower quality of teachers and teaching than a dramatic tale of classrooms full of uninstructed pupils. In fact, there may be no observed quantity imbalance but instead a change in the quality characteristics of the teaching workforce.

In the long run, systems have a wide range of strategies for enhancing the supply of teachers. The most common is to raise salaries substantially so as to make the profession more competitive with other occupations. However, due to resource limitations such strategies were not prior strategies in poor countries. Rather career ladder diversification and provision of continuous professional developments to some extent are commonly adopted strategies. In sum, in the short term, it is through adjustments in quality that supply and demand comes into equilibrium. In the long term, adjustments in salaries and working conditions determine equilibrium.

Chapter Three: Research Design and Methodology

3.1 The Research Design

The research designed to achieve the objectives set out by the researcher employed mixed approach of quantitative and qualitative design. The quantitative analysis was based upon a longitudinal consideration of recorded data, indicating what has been happening in the past and what the present situation reveals. The qualitative aspect on the opinions of informed participants was captured through FGD and questionnaire.

3.2 Data source

The data for the study were collected from both primary and secondary sources. As the attitudes and perception of policy makers, planners, education experts, college lecturers are critically important the primary data were gathered from the policy makers, planners, senior experts, Lecturers, and college instructors. The primary data were collected using Focus Group discussion and administering a questionnaire. Secondary data were collected to augment the facts by reviewing policy documents, Education Sector Development Programs, Annual Statistical Abstracts, Periodic Education Plans, and Reports.

The data required for demand analysis includes data on school age population, primary student's enrollment, number of teaching loads, number of subjects' taught, and pupil teacher ratio. The data for the analysis of teacher supply is found from stock of teaching force, college enrollment and graduation, and teacher retention. The data on college admission and graduation was obtained from the registrar office of GBCTE.

3.3 Instruments and Data Collection Procedures

Data were collected from primary and secondary sources. Primary data were collected by organizing Focus Group Discussion and administering a questionnaire.

A total of 12 participants organized in two groups one from BGREB and the other group from GBCTE participated in the FGD. The focus group discussion in the bureau was held with 6 participants fairly representing all the departments in the bureau (Planning, Curriculum, education Programs supervision and capacity development). The participants of focus group discussion in the college were the dean, the registrar, the planning head, and three instructors.

Structured questionnaire consisting of 10 questions and addressing different themes in demand for and supply of primary school teachers was used. The questionnaire was distributed to 30 participants; 15 from the RSEB and the other 15 from GBCTE. Senior management members in RSEB, planners, experts, College Dean, college instructors and Registrar responded to the questionnaire. The members of the senior management available and willing to participate in the interview were selected. Senior experts from planning, curriculum, education programs supervision and capacity development departments in the bureau were randomly selected. The college dean, planning head, and the registrar were purposively included in to the sample from the college. The rest 12 college instructors were randomly selected.

Secondary data were collected to augment the facts by reviewing policy documents, Education Sector Development Programs, Annual Statistical Abstracts, Periodic Education Plans, and Reports.

3.4 Methods of Data Analysis

Quantitative data from schools for the last 5 years were organized, analyzed, and presented. Numbers of teachers demanded was calculated by dividing the total primary enrollment to the standard pupil teacher ratio for each year. Thus the resulting figure provides information about the absolute number primary school teachers in the region required for that particular period.

Percentages of qualified teachers are calculated by dividing the total number of qualified teachers to the overall number of teachers in the region for that particular period**.** These figures provide information about changes over time in the extent of qualified teachers as a percentage of total teachers. Teacher supply is determined by subtracting net wastage of teachers from stock of teachers carried over from previous year and flow of newly graduated teachers in to the system.

The excess demand/excess supply was calculated from comparing the existing stock of serving teachers and an estimate of teaching force based on the national standard. The qualitative data from the questionnaire and focuses group discussion was organized into meaningful themes and categories for narration followed by case by case and across case analysis. Lastly, the entire data of the study was integrated, critically analyzed, interpreted, and reported with possible recommendations.

Chapter Four: Presentation, Analysis, and Interpretation of Data

4.1 Analysis of Teacher Demand in Primary Schools of Benishangul Gumuz Region

Students are the most important people in the school setting. All the other facilities are in place to support the students and their learning. Gross Enrollment is a crude measure of coverage. It shows the number of pupil enrolled irrespective of their age. Gross enrolment at primary level is the total number of students enrolled in grades 1-8 in the region. It includes under-age and over-age pupils and as a result sometimes is higher than 100 %. Gross Enrollment Rate *is the percentage of the total enrollment in the primary schools out of the corresponding primary school age population (7-14 years).* In Ethiopia the official age of students in grades 1-8 is in the range of 7-14. The trend of growth in primary Gross Enrolment Rate and school age population is shown in the following table 1.

Table 2: Primary GER and School Age Population in Benishangul Gumuz (2006/07-2010/11)

Year	Enrollment Grade (1-8)			School Age Population			Gross Enrolment Rate (GER)		
	M	F	T	M	F	T	M	F	T
2006/07	83641	61031	144672	67763	63038	130801	123.4	96.8	110.6
2007/08	82497	61746	144243	69406	64801	134207	118.9	95.3	107.5
2008/09	84774	63514	148288	75540	79448	154988	112.2	79.9	95.7
2009/10	86223	66323	152546	79474	77749	157223	108.5	85.3	97
2010/11	91775	70139	161914	82093	80326	162419	111.8	87.3	99.9

Source: Benishangul Gumuz Region Education Bureau Annual abstract (2010/11)

As indicated in the table 2 above, though the trend of total enrollment increased from 144672 in 2006/07 to 161914 in 2010/11, the Gross Enrolment Rate declined from 110.6% to 99.9% in the same year. This trend shows nothing but the students are enrolling at their proper ages.

Demand for Primary school teachers is primarily driven by gross enrollment. *Mathematically, Teacher demand = Gross Enrolment * Pupil teacher ratio.* Once the gross enrollment is identified, it is automatic to calculate the demand for teachers, given the standard pupil teacher ratio. Given pupil teacher ratio of 50, the increase in student enrolment over the last five years had increased the demand for teacher.

Table 3: Enrolment, Pupil-Teacher Ratio, and Teacher Demand in BGRS (2006/7-2010/11)

Year	Enrolment (1-8)	Standard Pupil Teacher Ratio	Demand for Qualified teachers
2006/07	**144672**	50	**2893**
2007/08	**144243**	50	**2885**
2008/09	**148288**	50	**2966**
2009/10	**152546**	50	**3051**
2010/11	**161914**	50	**3238**

Source: compiled from BGRS Education Annual Abstract (2010/11)

As shown from the table 3 above, initially during 2006/07, there were 144672 students enrolled in the primary schools of Benishangul Gumuz Region demanding about 2893 qualified teachers for the level. With the increase in the gross enrollment to 161914 in 2010/11, the demand for qualified teachers increased to 3238. As seen in table 2 above, the demand for qualified teachers have been increasing in response to the increase in gross enrollment in the region.

The pupil-teacher ratio at primary school level

The number and distribution of teachers are important policy parameters helping to determine the demand for teachers while maintaining the quality of education. The pupil-teacher ratio is a commonly used indicator, reflecting the human resource capacity of education systems. High pupil-teacher ratios can signify an overstretched teaching staff, while low ratios may represent additional capacity. However, the pupil-teacher ratio is a national average which can conceal considerable variation between regions and schools.

The student-teacher ratio is the most important determinant of teacher numbers that is open to policy influence. The student-teacher ratio determines the number of teachers employed for a given population of students. It therefore provides boundaries for the average size of classes and the average class teaching load of teachers. Over the long term countries have reduced student-teacher ratios in schools although, in terms of international comparisons, changes in data definitions and coverage suggest caution in estimating the size of the reductions. The more widespread integration of students with special needs into mainstream schooling has been an important factor in the reduction of student-teacher ratios. Typically, adjustments to the student-teacher ratio reflect budget and industrial relations factors, judgments about improving conditions in schools, or responses to rapid enrolment changes (*e.g.* where teacher numbers are maintained despite falling enrolments). Reductions in the student-teacher ratio enable either a lower average class size, or a reduction in teachers' class teaching time, or some combination of the two (which is probably the most common outcome over the longer term).

There is a trade-off between the average size of classes and teachers' class contact time. For a given student-teacher ratio, the average class size can only be reduced by teachers spending more time in face-to-face teaching. Correspondingly, teachers having less classroom contact time lead to an increased average class size. Different uses of the same level of teacher resources may have different effects on student learning. For example, a school in which teachers spend more time in face-to-face teaching (and thereby reduce average class size) is not necessarily going to achieve better student learning than one in which class sizes are larger but teachers have more preparation time, or access to more specialist teacher support. There are two views on PTR:

1) The lower the PTR, the better the opportunity for contact between the teacher and pupils and for the teacher to provide support to students individually, thereby improve the quality of education.
2) On the other hand, very low PTR may indicate inefficient use or under utilization of teachers resulting in low efficiency.

However, low or high PTR alone does not explain quality of education because quality of education depends on more other factors such as mode of delivery, commitment, qualification of teachers, supply of educational materials, and so on. The following table 4 shows the relative change in primary PTR for the past five years in Benishangul Gumuz compared to national average.

Table 4: Comparison for regional and national Pupil- Teacher Ratios.

Year	PTR National	PTR Benishangul Gumuz
	1-8	**1-8**
2006/7	59	47
2007/8	57	53
2008/9	54	44
2009/10	51	43
2010/11	51	41

Source: MoE and BGRSEB annual abstracts

The national standard for Pupil-teacher ratio (PTR) is 50:1 for primary and 40:1 for secondary. Over the five years period, PTR in Benishangul Gumuz region is lower than the national average. In 2010/11 the pupil-teacher ratio for Benishangul-Gumuz Regional State primary schools is 41 where as the national PTR is 51. However, when PTR is calculated for qualified teachers at each level, it is 115. This means that the qualified primary school teachers are far away below the specified standard set by the Ministry of Education, which reflects the high demand in the region for upgrading and recruitment of qualified teachers in primary Schools.

Comparison of Pupil Teacher Ratio (PTR) with Pupil-Section Ratio (PSR):

The relationship between class size and the quality of education has sparked considerable debate among policymakers and researchers. Some argue that smaller classes allow teachers to tailor instruction better to the needs of individual students. It is important to distinguish student-teacher ratios from class sizes. The relationship between these two measures is complicated by many factors. These include differences between countries in the length of the school year, the number of hours for which students attend class each day, the length of the teacher's working day, the number of classes or students for which a teacher is responsible (*e.g.* in systems of multi-grade teaching or where there are multiple shifts of students with the same teacher), the division of the

teacher's working time between teaching and other duties, the grouping of students within classes and the practice of team teaching (OECD, 2000*a*).

A lower PSR ratio in comparison to the national standard indicates under-utilization of resources while a higher PSR indicates overcrowding of classes and hence less interaction between students and teacher as well as among students themselves.

Table 5. Pupil Teacher Ratio and Pupil section ratio in Primary schools

Year	PTR (Pupil Teacher Ratio)			PSR (Pupil Section Ratio)		
	1-4	**5-8**	**1-8**	**1-4**	**5-8**	**1-8**
2006/07	48	47	47	59	65	61
2007/08	46	72	53	56	60	58
2008/09	47	53	44	54	62	57
2009/10	45	40	43	53	62	57
2010/11	45	38	41	54	60	56

Source: Benishangul Gumuz Region Education Bureau Annual abstract (2010/11)

Table 5 shows that there is wide disparity between PSR and PTR in the region. Both PTR and PSR have declined over the last five years. But there is difference in the two indicators that shows over crowing of students in the region. On the average there is one classroom for 56 students in 2010/11 where as there is one teacher for 41 students in the same period.

4.2 Analysis of Teacher Supply in Primary School of Benishangul Gumuz Region.

Teachers are at the centre of the debate on education quality and children's learning outcomes. They are the largest single budget item of schools, and many believe that they are the most important determinant of school quality. They also play an important role in transmitting cultural and social values, such as tolerance, dialogue and gender equality. Teachers are defined as professional personnel involved in direct student instruction. This involves planning, organizing

and conducting group activities whereby students' knowledge, skills and attitudes develop as stipulated by educational programmes.

There are four sources of teachers in any given year: Continuing teachers/Teachers Stock (those who are teaching in the same school as the previous year); immigrant teachers (those who have moved from outside the local hiring level); new teachers (new teacher education graduates); and 4) reentrants (former teachers who were not teaching in the previous year). For the sake of this study there is limitation of data on immigrant and reentering teachers in the region. Thus analysis of teacher supply will focus on continuing teachers and new teacher education graduates. The following table shows teacher supply in Benishangul Gumuz region in terms of Teacher stock, new teachers, turnover, and Upgrading. Teacher turnover and upgrading are leakages from the total teacher supply.

Table 6: Teacher Supply in primary Schools of Benishangul Gumuz (2006-2011)

Year	Number of Qualified teachers	New Graduates	Estimated Turnover	Number of Upgrading Teachers	Total supply of qualified teachers	Total Supply of unqualified teachers	Total Supply of teachers
2006/07	1303	99	84	205	1113	1965	3078
2007/08	1336	92	86	493	849	1873	2722
2008/09	1545	0	93	90	1362	2008	3370
2009/10	1573	125	102	337	1259	2289	3548
2010/11	1619	40	100	200	1359	2590	3949

Source: Compiled from Regional Abstract (2010/11)

1. **Teacher Stock**

Teacher stock is the largest and top most source of teacher supply in Benishangul Gumuz Region. 'Teacher stock' refers to the current number of teachers in the teaching force. Typically, this figure remains relatively steady over time which often gives the impression of stability. However, stock is determined by the flows of teachers in and out of the profession, which may be considerable in size. The stock of primary school teachers in Benishangul Gumuz Region constitutes the stock of qualified and unqualified teachers. According to the national standards, qualified primary school teachers are those teachers with a minimum qualification of Teachers Education College Diploma. As shown in the above table 5, there was increment of teacher stock from 3078 in 2006/07 to 3949 in 2010/11. During 2010/11, out of the total 3949 primary school teachers in the region, 2590 (66%) teachers were unqualified.

2. **New Graduates**

Teacher education has been high on the policy agenda of Benishangul Gumuz region. The region has been doing its level best to ensure that teacher education is attractive to high-quality entrants, and that it adequately prepares teachers for the demands of modern schooling. Reforms are underway providing more flexible pathways into teacher education, strengthening its research and knowledge base, lifting the status of teaching qualifications and giving trainee teachers closer contact with schools. However, while improving initial teacher education is important, it is insufficient on its own. The teaching career is increasingly seen in lifelong learning terms, with initial teacher education providing the foundations. Therefore, the region is also seeking ways to provide better support for beginning teachers, and opportunities and incentives for ongoing professional development throughout the career.

New graduates constitute the second source of teacher supply in Benishangul Gumuz Region. Gilgel Beles College of Teachers Education is the only CTE of the region to supply qualified primary school teachers. It was founded in 2003/04 in the region, Metekel zone, Gilgel Beles town. It is managed by the Benishangul Gumuz Regional State Education Bureau. On the onset, the college was established with the aim of preparing teachers for the first cycle school level in the in-service and pre-service program. The college used to give training to 1 year certificate till 2005/06. However, as the required qualification level of primary school teachers changed from a 1 year certificate course to a three year diploma course after grade 10, the college continued to provide a three year diploma course through linear and cluster modalities. The college admits trainee teachers from two sources. The first source is regular admission from the regional education bureau. The second source is private trainees. The regular admission by regional education bureau constitutes the potential supply of teachers to the system. After graduation, the trainees automatically join the education system as qualified primary school teachers. The private graduates will seek employment elsewhere by themselves. Few years ago, there used to be wide opportunity in the region to employ these graduates. Now a day the opportunities are too few.

During 2009/10, the college graduated a total of 1321 primary school teachers with linear (764) and cluster (557) modalities in regular, extension and summer programs. Of the total 1321 graduates of the time, only 125 (9 percent) were regular assigned by the regional state and the rest are private. This decreased to 4 percent in 2010/11 where out of the total 1056 graduates of the college for the year, only 40 (4 percent) were regular students. The rest 96 percent of the graduates in the college were admitted privately. This shows that the college has been utilizing insignificant proportion of its capacity for the purpose it was established.

According to the colleges strategic plan the total number of staff serving the college is 83. Of these 83 college staffs, 46 were administrative and 37 were academic staffs. These all staff is there to support a maximum of 430 students during 2009/10 to 2011/12. This is a clear indication that the college has been underutilized.

Table 7. Regular Admission and Graduation of Gilgel Beles CTE (2004/05-2011/12)

Year	Enrolment			Graduation			Remark
	M	F	T	M	F	T	
2004/05	62	43	105	71	34	105	Certificate
2005/06	72	28	100	33	12	45	Certificate
2006/07	0	0	0	61	38	99	Diploma
2007/08	118	50	168	68	24	92	Diploma
2008/09	42	11	53	0	0	0	Diploma
2009/10	67	19	86	94	31	125	Diploma
2010/11	148	81	229	28	12	40	Diploma
2011/12	68	46	114	21	54	75	Diploma

Source: Gilgel Beles CTE Registrar Office

As shown in table 7, there was no regular admission to the college during 2006/07. As a result o graduates during 2006/07. As per the FGD held with officials of the college, they attributed this due for the reason that the region had failed to secure the fund. As a result, the region has not been utilizing the college to its full capacity. One of the participants expressed the inefficiency in the use of the college resource as follows; “there is extreme under utilization of CTE instructors under the regular program. During summer there is overflow of candidates beyond the capacity of the college. The college has been using nearby preparatory schools and instructors from

different sources for the summer trainings". These comments support the claim by the experts that the region is not in a position to manipulate the demand for and supply of teachers in the region on its own effort.

3. **Teacher Turnover**

An important measure in characterizing problems associated with teacher demand is the level of turnover in the profession. Data on teacher turnover is readily available in the region. For the purpose of this study, teacher turnover for the region is estimated at 6% of the total teaching force. Many literatures estimate it at 5-6%. The major reasons for teacher turnover in the region are retirement, shifting to other jobs, upgrading, and transfer to other nearby regions such as Amhara and Oromia. Currently turnover due to retirement is insignificant in the region. Shifting to the other jobs, transfer to other neighboring regions, and upgrading constitutes the largest share of turnover.

As Benishangul Gumuz region is one of the emerging regions, the education sector is the primary source of trained man power to all other sectors in the region. Most of the office workers in the region are ex teachers at different levels of schools. Specifically majority of the newly assigned indigenous officials are originally from the education sector (teaching). The region constitute the remotest woredas and schools in the country that experienced teachers from those woredas and schools frequently move to neighbor regions (Amhara and Oromia) in search for better infrastructure. Data on such shifting to other sector offices and transfer to other regions is not readily available in the region. Thus, the researcher has estimated the annual teacher turnover due to those factors to be 6%. This is consistent with (5-6%) that most literatures do as per the specific condition of countries. Data on turnover due to upgrading was available and treated separately in this study.

The Education and Training policy of Ethiopia states the commitment of the government to offer special support to the marginalized areas that were deprived of education services in the past. However, realizing the equitable quality education services in the pastoral and semi-pastoral regions (namely, Somali, Afar, Gambella and Benishangul Gumuz) has remained challenging because of the pastoralists' socioeconomic problems emanated from a long period of neglect and marginalization and the natural environment they inhabit (MoE 2011). Consequently, Ministry of education assigned quota to regions to upgrade teacher's qualification. As a result, there was frequent upgrading of CTE diplomas to the level of Bachelor degree. Such upgrading usually turns to the movement of teachers to high schools. However, the prevailing trend in upgrading seems much faster and outnumbers the demand for those upgrading teachers at high schools.

Federal support to emerging regions in this aspect has been encouraging and the region has been using the opportunity positively. However, with limited number of high schools in the region, these upgrading teachers may not get teaching positions in the high schools in near future. This would have its own implication on the demand for and supply of teachers in the region. Of course despite the budget implication, having over qualified teachers may not be seen as a major obstruction. Even so, the regional education bureau needs to look ahead and devise mechanisms where the required number and quality of teaching force in the region is maintained in the proper flow.

4.3 Teacher Quality in the Primary schools of Benishangul Gumuz Region

Much of the contemporary work on measuring teacher supply and demand defines quality in terms of the teachers' credentials. That is, a teacher is qualified to teach if he or she is certified in the area in which he or she is teaching. Determining who is teaching our nation's youth and whether or not there will be enough well-trained teachers to meet the demand are matters of

utmost importance to educators, parents, policy makers, and others interested in educational issues. The role of teachers in overhauling the educational system and improving the quality and standard of education in is very crucial. Many educators measure the quality of education in terms of input, process and output. Although process and output are equally important, they are not good measures in developing countries like Ethiopia where the minimum amount of input are not available. This section tries to assess quality in terms of input which is believed to be strongly determined by the human resource. The indicators most widely used to measure this input are teacher qualification and pupil/teacher ratios.

Effective schooling at all levels depends on a highly qualified and motivated teaching force. Recently, the tasks of teachers are growing more complex and demanding than in the past. They have to respond to the wishes of the community regarding educational outcomes, the social need for wider access to education, and pressures for more democratic participation within the schools. In order to ensure that teachers are properly equipped professionally to meet the new tasks and challenges posed in the classroom, countries define the minimum qualification required of teachers for the different levels of the system. In Ethiopia, as per the policy, a primary school teacher should at least have a college diploma. According to the national standards, the first cycle (Grades 1-4) and the second cycle (Grades 5-8) of the primary education requires teachers with a minimum qualification of TEC Diploma (Cluster and Linear respectively) level. The following table shows the proportion of qualified teachers in primary schools of Benishangul Gumuz region for the last five years.

Table 8. Percentage of Qualified Primary School Teachers in Benishangul Gumuz

Year	Grades (1-4)			Grade (5-8)		
	Male	Female	Average	Male	Female	Average
2006/07	100	100	100	53.2	50.0	52.8
2007/08	99.4	99.4	99.4	62.5	62.3	62.5
2008/09	9.7	10.6	10.1	76.1	77.7	76.7
2009/10	23.6	32.4	27	88.1	90.2	88.6
2010/11	34.8	45.8	38.8	90.6	93.6	91.2

Source: Benishangul Gumuz Region Education Bureau Annual abstract (2010/11)

As seen in table 8, there was a sharp decline in the proportion of qualified primary school teachers of the region from 100% in 2006/07 to 10.1% in 2008/09. This decline was due to the fact that the required qualification level for the first cycle (1-4) primary school teachers had increased from a one year certificate course to a three year diploma course after grade 10. Comparison across the cycles shows that the proportion of qualified teachers for the first cycle primary declined sharply during 2008/09 and show steady increment afterwards, it showed steady increment for the second cycle primary (5-8).

4.4 Divergence in the Demand for and supply of Teachers

This is the final section of the demand and supply analysis. In this section summary of demand for and supply of primary school teachers and the divergence will be analyzed under two important scenarios. The first scenario assesses supply of the prevailing stock of teachers in primary schools of Benishangul Gumuz and compares it with actual demand. The second scenario looks into the supply of *qualified teachers* and compares it with the demand.

Scenario one: under this scenario, the demand for primary school teachers will be compared with the current stock of primary school teachers irrespective of their qualification. Teacher demand was calculated from gross enrolment and standard pupil teacher ratio as set by federal

ministry of education. The following table summarizes the demand for and supply of primary school teachers in the region and identifies the gap. Teacher demand was compared with the supply of qualified and unqualified teachers and the gap is presented in terms of those qualified and unqualified teachers.

Table 9: Demand for and supply of primary school teachers (2006/07-2010/11).

Year	Teacher Demand	Teacher Supply				Gap	
		Qualified	Unqualified	Total	Proportion of unqualified Teachers	Qualified	Total
2006/07	2893	1113	1965	3078	64%	(1780)	185
2007/08	2885	849	1873	2722	69%	(2036)	(163)
2008/09	2966	1362	2008	3370	60%	(1604)	404
2009/10	3051	1259	2289	3548	65%	(1792)	497
2010/11	3238	1359	2590	3949	66%	(1879)	711

Source: compiled from regional education abstract (2010/11)

As shown from the above table 9, except for the year 2007/08, the overall supply of teachers in primary schools of the region is greater than the demand. The surplus has shown an increasing trend and year 2010/11 has shown the largest surplus. During 2010/11 there was marked surplus of 711 primary school teachers in the region. The surplus was 497, 404 and 185 during 2009/10, 2008/09, and 2006/07 respectively. Although it is generally better to have an oversupply of teachers than a shortage of qualified applicants, there can be high individual and social costs when substantial resources are invested in teacher education but many graduates are not able to find work as teachers. This is especially so where their qualifications are not widely recognized elsewhere in the job market. Several countries report that because the current teacher workforce is “saturated” it is difficult to ensure that able and motivated people find jobs as teachers and are not lost to the profession. Educational planners and schools also need to specify the demand for

teachers at more detailed levels, such as by subject matter, school type, educational programme or region of the country. Although countries may not have a general shortage of teachers, for example, there can still be shortages of particular types of teachers, or shortages in particular schools.

Scenario two: under this scenario, the demand for primary school teachers in the region is compared to the supply of qualified teachers for the level. As shown in the table 8 above, there is great disparity between the demand for and supply of qualified primary school teachers in the region. It shows critical shortage of qualified teachers in the region. The demand supply gap (shortage) is highest during 2007/08. When we see the trend in total stock of teachers in the region, the total number of qualified teachers is less far below the numbers of unqualified teachers. As seen from the table over the past five years, the proportion of unqualified teachers in the region is more than 66%. Therefore, provision of qualified teachers to those ever growing primary schools and students in the region has been a critical concern for the region. The region has clearly expressed lack of well articulated gap between the number of qualified primary school teachers and the demand placed upon them by the education system as a major problem in its ESDP IV. Thus such systematic analysis of teacher demand and supply should be used as an input in need based planning and preparation of teaching force in the region.

4.5 Analysis of FGD and Questionnaire Responses

Education officers and officials who involved in the focus group discussion recognized the fundamental role of government in the management of teacher demand and supply. Those factors frequently cited by the participants in favour of increasing demand for teachers include growing awareness of the community to send their children to school, conducive government policies to construct low cost schools at the vicinity of the rural and remote areas, introduction of

Alternative Basic Education in the region, improved service delivery due to decentralized administration. The FGD participants confirmed the growth of teacher demand due to the growth in size of primary schools in the region. The attributed the growth to the government's effort to achieve UPE. The FGD participants mentioned that the majority of schools in the region are government schools and the government through its various layers brings students to schools and handled all matters related teacher management. Schools do not have the responsibility to hire teachers. Teachers are rather assigned to schools. Schools role is only to allocate teaching load among the existing teachers. The school management is responsible to cover the whole school period such that teacher should not be left idle and no class left without teacher. The teacher once assigned to the school should hold a class whether he/she is qualified or not. School directors may ask for teachers stating their requirements but the woreda may not have teachers of the stated quality.

The participants pointed different factors that affect the demand for teachers mainly the increase in student enrolment and change in standard requirements. The FGD participants confirmed the growth of teacher demand due to the growth in size of primary schools and students in the region. They attributed the growth to the government's effort to achieve UPE. Participants also raised the issue of changes in teacher standards as a factor determining the level of teacher demand and supply. Introduction of new change in teacher standard at each grade level also have brought imbalance in the requirement for the desired teacher qualification and the actual practice. The new standard requires teachers with college diploma to teach at the lower primary level and teacher with BA/BED were required to teach at higher primary schools. Participants generally noted the factors that positively affect teacher supply as establishment of Gilgel Beles College of Teacher Education, wider professional development opportunities to teachers, stable teacher

flows in the region, and provision of hardship allowances in some remotest woredas of the region. There are some factors that negatively affecting teacher supply in the region. These include; budget constraint, small class size, turnover, poor working conditions and teacher living styles.

The participants also noted the growing trend in supply of primary school teachers. Teacher supply apart from the existing stock and graduates of Gilgel Beles College, emerge from different colleges in the country. Gilgel Beles College regardless of its potential capacity is reported to contribute much less to the supply of qualified teachers. The participants attributed this to critical shortage in budget and loose relationship and communication between the college and the regional education bureau. Of course, the college was commended by participants for the regular updating of the primary school teachers from certificate to diploma. One of the participants strongly commended that the region planned to qualify all the certificate teachers to diploma using the college.

Education authorities, planner and experts through questionnaire and FGDs generally reported an adequate supply of generalist teachers, although recruitment difficulties were experienced in some geographic locations. They also confirmed that there already exist a sizable teaching pool, and there are large numbers of people in the workforce who possess teaching qualifications but are not fulfilling the recent standard requirement of college diploma.

In his response to the challenges of the bureau in discharging its responsibilities, one of the participants on FGD was noted as saying:

> "*Manipulation of demand for and supply of teachers in the region is out of the control of the regional education bureau. Because the bureau trains teachers in the region using funds secured from different sources where some of the sources are insufficient and other sources are not reliable*".

Accordingly, the bureau found it difficult to plan teacher training in the region in accordance with the actual demand for the teachers. This concern was also shared by another participant in his response to the questionnaire stating:

> *"College plans were only for the formality. Actual intake by the college had been predetermined by availability of funds for the purpose. The college only train candidates sent by education bureau as per the level of fund secured"*.

These ideas of both participants, was reaffirmed by the fact that the college had not enrolled students for 2006/07 and there were no graduates for the year 2008/09. Finally participants identified lack of budget, poor communication system, and inefficient monitoring and evaluation system as a major constraint in keeping the demand and supply in balance.

Chapter Five: Summary, Conclusion, and Recommendations

5.1 Summary

The demand for primary school teachers in the region has been calculated based on the gross enrollment at primary school level and standard pupil teacher ratio set by ministry of education. Data on teacher supply is disaggregated level of qualification that teachers with CTE diploma were regarded as qualified and other unqualified. Data from the regional education bureau shows bulk of unqualified primary school teachers in the system. During 2010/11 there were actually 1359 qualified teacher against the 3238 required qualified teachers as per the standard PTR showing shortage of 1879 (58 percent). However, the actual number of teachers in the system was 3949 showing surplus of 711 teachers (22 percent). Thus the primary school system in the region is characterized by bulk of unqualified teachers and critical shortage of qualified teachers.

The region lacks well articulated gap between the number of qualified primary school teachers and the demand placed upon them by the education system. As a result the decision makers suffers from the lack of systematically analyzed information on teacher demand and supply in the which would be used as an input in need based planning and preparation of teaching force in the region. The region has been experiencing disproportionate upgrading of CTE diplomas to bachelor degree. This would likely impede stock of teachers at primary level and create overcrowding at the secondary level. Otherwise it would amount to a bulk of overqualified teachers in primary schools which may have adverse effects in terms of teacher's motivation, morale and resource utilization.

Gilgel Beles College of Teacher Education has been operating far below its normal capacity. The annual graduation of the college is insignificant in terms of its potential capacity and the size of teaching force in the college. For example, during 2010/11, there were about 80 (37 qualified

instructors and 43 other support) staffs in the college to support the training of 315 trainees and 40 graduates. This was the largest ever number of trainees in the history of the college. This shows a huge wastage and poor resource utilization in the education system of the region.

5.2 Conclusion:

Analyses of teacher supply and demand variables contributes substantially to the understanding of the overall dynamics of the teacher labor force variables and could provide a database with valuable information for addressing the teacher supply and demand issue both at local and national levels. This in turn would enhance efficient utilization of the scarce resources in the region.

Actually, there has been lack of well articulated gap between the supply of qualified primary school teachers and the demand placed upon them by the education system. There is no systematic flow of information regarding the current and potential supply of teachers' vis-à-vis, the existing stock and upgrading potential. This would likely lead to unregulated flow of teaching force and inefficient utilization of scarce resource in the region.

Data from the regional education bureau shows bulk of unqualified primary school teachers in the system. One way to eliminate untrained teachers completely from the educational system in the shortest possible time is to step up the supply of teachers from the initial training colleges. This is quite possible in the region for the college is operating under its full capacity. However, due to the limited financial resources in the region this remains a long term option.

Availability of qualified teachers in sufficient number is a critical input in improving quality of education at primary level. Data from the regional education bureau shows bulk of unqualified primary school teachers in the system. During 2010/11 there were actually 1359 qualified primary school teacher against the 3238 required qualified teachers as per the standard PTR

showing shortage of 1879 (58 percent). However, the actual number of teachers in the system was 3949 showing surplus of 711 teachers (22 percent). This shows us that the problem of teacher supply in primary schools of the region is not of the quantity; rather it is more of the quality.

While the future extents of imbalances are subject to some uncertainties, and despite an oversupply of teachers having some obvious benefits for employers, both surpluses and shortages can impose considerable costs. In the case of surpluses, costs can be imposed on the government, which subsidizes the price of 'underutilized' pre-service training. Benishangul Gumuz region has been incurring costs of administering GBCTE, what so ever amount of graduates it produce. Also, teaching graduates who do not find employment in the education sector will bear some costs if their incomes and work satisfaction are lower than would have otherwise been the case, notwithstanding the general benefits available to those who undertake tertiary studies.

Significant improvements in teacher supply could be attained by better planning and regulation of teacher training, through forecasts of the number of newly trained teachers required, monitor teacher attrition on an annual basis, for each level and subject specialization, and adjust the entry to teacher training on annual basis in response to analysis of requirements and attrition.

The number of teachers to be trained for primary schools in the region has been determined not by the number of teachers actually required, rather by the availability of fund for the purpose. As a result, there was no well thought teacher requirement plan in the region.

There was no uniform trend for upgrading of teachers in the region. Because the upgrading was not need based and planned. It was determined up on *ad hoc* securing of funds for the purpose.

Upgrading of teachers qualification through various mechanisms is important. However, the upgrading should be planned ahead based on the practical context of the region.

There has been over supply in the overall stock of primary school teachers in the region. At the same time there is critical shortage of qualified primary school teachers. Of the total teaching force at primary school level 66% are unqualified for the level. During 2010/11, the pupil to teacher ratio in primary education in the region is 41 and it is better compared to the national standard 50 and actual national PTR of 56. The pupil teacher ratio of the region with respect to qualified primary teachers is 115. This is far less than the national average.

The outcome of such bulk of unqualified teachers in the system had been manifested in the poor student achievement results in the national learning assessments conducted. The national learning assessment result for grades 4 and 8 was among the lowest in the country. For example despite the lower pupil teacher ratio of the region, grade 4 national assessment result declined from 43.7 in 2004/05 to 39.5 in 2007/08. Similarly, grade 8 national assessment result declined from 33.6 in 2004/05 to 29.9 in 2007/08.

Most of the schools in Benishangul Gumuz region are small in size. This is because of the scattered settlement pattern of the region. This challenged the efficiency of staffing of primary school teachers leading to inefficiencies in teacher utilization.

Gilgel Beles College of teacher education has sufficient potential capacity to train primary school teachers to the region. However, the college is not operating at its full capacity as it was stated in its mission.

5.3 Recommendations

Developing a highly qualified, efficiently distributed teaching workforce is essential for a successful education system. Effective management of the teaching force can lead to positive student outcomes. Thus, the regional state education bureau has to do its level best to upgrade all the under qualified teachers to their maximum qualification level.

The regional education bureau in collaboration with the regional government has to devise a mechanism where school sizes in the region could grow to a reasonable level. The ongoing resettlement program in the region has positive bearing in increasing the size of schools in the region. Because through it the widely dispersed residents of the region could come nearer to each other and this could increase school size, staffing efficiency, and make use of the existing teaching force to its best optimum level.

The regional education bureau needs to assess the short term as well as the long term requirements for qualified teachers at each level and ensure that the investment made in teachers is sufficient and proportionate to the demands placed upon them.

The efficiency of the teacher labour market is affected by information gaps. Maintaining data on teacher turnover is crucial in teacher demand and supply analysis that the regional education bureau need to maintain data base on teacher turnover using its school census format. And the bureau shall report teacher turnover in its annual statistical abstract. Moreover, teacher supply and demand gaps need be analyzed as part of school annual abstract so that the region cold get prepared to fill out the gap.

Allowing the laws of supply and demand to drive the number of candidates entering teacher colleges has many advantages. In the long term, market forces should ensure that the correct number of teachers required by the system is trained. There should be effective teacher's management in the region that the number of teachers getting into the system and leaving the system should be carefully managed. The consequences of a very uneven rate of development of teacher supply can be far-reaching and serious, especially when a period of heavy teacher recruitment is succeeded by one of slower growth in the size of the teaching force.

Significant improvements in teacher supply should be attained by better planning and regulation of teacher training, through forecasts of the number of newly trained teachers required, monitor teacher attrition on an annual basis, for each level and subject specialization, and adjust the entry to teacher training on annual basis in response to analysis of requirements and attrition

Gilgel Beles CTE, the only teacher education college of the region should be properly utilized to its full capacity. Otherwise, there need be modification in the management and utilization of the college based on emerging needs and the regional priorities. The college needs to diversify its scope and capacity in various dimensions. Although the main focus of the college continues to be pre-service training, it needs to refocus on the in-service training, updating and renewal of knowledge, skills and capabilities, and pedagogical research avenue.

The efficiency of the teacher labour market is affected by information gaps. The first prerequisite for effective planning is to set in order the system of collecting, recording and analyzing data on the current teacher force, and on movements within, into and out of that teacher force. Unless there is an adequate data base with respect to teacher stocks and flows, attempts to plan teacher

demand and supply will be futile. Thus details of the composition of the teaching force should be indicated in the annual School Census. This helps collection of accurate information periodically from schools. This calls for systematic refinement of school Census questionnaire to accommodate those important elements.

One way to eliminate untrained teachers completely from the educational system in the shortest possible time is to step up the supply of teachers from the initial training colleges. This is quite possible in the region for GBCTE which is currently operating below its full capacity. At the same time, there is a need to upgrade teachers in the system to desired level through summer training programs of the college.

Policies to attract develop and recruit teachers need to be complemented by strategies ensuring that teachers work in an environment which facilitates success, and that effective teachers wish to continue in teaching. If school systems are to ensure a quality teaching workforce, not only will they need to attract able people to the teaching profession they will also need to retain and further develop the teachers currently employed in schools.

The development of transparent and prompt systems to close the information gaps between teachers and schools is essential for an effective functioning of the teacher labour market, especially where schools are more directly involved in teacher recruitment and selection. Since imbalances in the teacher labour market can take a long time to be rectified, tools for monitoring and projecting teacher demand and supply under different scenarios should be a particular priority.

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Appendix 1

Summary of Teacher demand and Supply in Benishangul Gumuz Region

Year	Teacher Demand			Teacher Supply							Gap (c-i)
	Number of students (a)	Standard Pupil teacher Ratio (b)	**Required Number of Teachers © (a/b)**	Qualified Teachers retained in the system (d)	Total Number of Teachers in the system	New Graduates of GBCTE(e)	Total number of Qualified teachers in the region (f	Upgrading Teachers (g)	Turnover estimated at 6% (h) (f* 0.06)	Total Supply (i) [f-(g+h)]	**Gap in terms of Qualified Teachers**
2006/07	144672	50	**2893**	1303	3078	99	1402	205	84	1113	1780
2007/08	144243	50	**2885**	1336	2722	92	1428	493	86	849	2036
2008/09	148288	50	**2966**	1545	3370	0	1545	90	93	1362	1603
2009/10	152546	50	**3051**	1573	3548	125	1698	337	102	1259	1792
2010/11	161914	50	**3238**	1619	3949	40	1659	200	100	1359	1879

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Appendix 2

Demand for and Supply of Primary School Teachers in Benishangul Gumuz Region

Focus Group Discussion guide

Name of Office/bureau_____

Number of participants M=_____F=_____ T=_____

This is a focus group discussion guide for education experts and college instructors in Benishangul Gumuz region to collect qualitative information on the demand for and supply of primary school teachers in the region. The aim of this FGD is to find common views or establish common ground on issues of teacher demand and supply in the region. The FGD, while increasing coverage will also give chances for debates, elaboration and building around teacher demand and supply.

1. What do you think of the trends in demand for and supply of primary school teachers in the region for the last years?
2. From your opinions what are the factors that affect the demand for and supply of primary school teachers (positive and or negative)
3. What do you think should be improved in terms maintaining the balance between demand and supply of primary school teachers?

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4. How would you evaluate the capacity of the regional education bureau to fulfill the requirements of the education system in terms of providing quality inputs such as qualified teachers? What do you think are the possible bottlenecks?
5. Do you fill that the college has been operating to its full capacity and producing quality teachers as stipulated in its mission?
6. What would you think should be improved in the current implementation and operation of GBCTE?
7. Are there other relevant points to be raised concerning the demand for and supply of primary training needs the organization/office?

Thank you all for your interest and genuine support

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Appendix 3

Questionnaire for RSEB/CTE Heads, senior experts, and Instructors

Dear Participant,

This interview Guide is intended to solicit information from you on the factors affecting the demand for and supply of primary school teachers in Benishangul Gumuz region. The study is only for academic purpose for the partial fulfillment of Master of Arts degree in Educational Research and Evaluation. The researcher would like to assure you that all the information you give will be kept confidential and be used only for academic purpose. It is the researcher's firm belief that your professional response and feedback will provide useful information that will help to analyze the demand for and supply of primary school in the region so as to provide valuable recommendations.

Thank you in advance for your cooperation

General Information

1.1. Place of work (RSEB/ CTE) _____

1.2. Work unit/process, department/section_____

1.3. Current position_____

1.5. Educational qualification_____

2. How do you express the current teaching and learning process in your region in terms of the quality and quantity of teachers?

_____

_____

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3. Where do you/ your organization get teachers from? Do you think your organization has clear strategy as to how and where it gets its teaching force?

4. How often you/your organization recruit teachers in one year? What do you think is the status of teacher turnover in the region?

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5. Do you think your schools staffed adequately?

Yes ☐ No ☐

6. How do you see the balance between the demand and supply of primary school teachers in your region in terms of quality and quantity?

_____

_____

_____

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7. What factors you think are affecting the demand for and supply of qualified primary school teachers in the region?

_____

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8. How do you evaluate the relationship between Gilgel Beles College of Teacher Education and regional education bureau in terms of the following activities?

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i) Joint planning

_____

_____

_____

ii) Recruitment of teacher Candidates for training

_____

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iii) Teachers Professional Development

_____

_____

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_____

iv) Budget allocation, monitoring and evaluation of programs

_____

_____

_____

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9. What do you think are the major challenges of the bureau in terms of discharging its roles and responsibilities if any in maintaining reasonable balance in teacher demand and supply?

_____

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10. Please tell us the major challenges of the college in terms of discharging its roles and responsibilities (if any) in maintaining reasonable balance in teacher demand and supply?

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11. Please forward possible ways out to maintain the right balance between the demand and supply of primary school teachers in the region.

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Appendix 4

Participants of Focused Group Discussion on the Demand for and Supply of Primary School Teachers in Benishangul Gumuz Region from BGRSEB

No	Name	Organization	Department
1	Melkamu Dessalegn	RESB	Planning and Programming
2	Tilahun Wole	RSEB	Curriculum
3	Berhan Kefyalew	RSEB	Education Programs supervision and capacity development
4	Mitiku Mekuria	RSEB	Curriculum
5	Tsehay Mengesha	RSEB	Education Programs supervision and Capacity Development
6	Teferi Womber	RSEB	Education Programs Supervision and Capacity Development

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Appendix 5

Participants of Focused Group Discussion on the Demand for and Supply of Primary School Teachers in Benishangul Gumuz Region from GBCTE.

No	Name	Organization	Department
1	Semeneh Bedmeo	GBCTE	Instructor College Dean
2	Amentie Roba	GBCTE	Planning and Programming head
3	Shewa Basizo	GBCTE	Instructor
4	Mekonnen Tesema	GBCTE	Instructor
5	Atinafu Morka	GBCTE	Instructor
6	Demis Demeke	GBCTE	Registrar