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EDUCATION NEEDS ASSESSMENT FOR THE CITY OF LOUGA, SENEGAL

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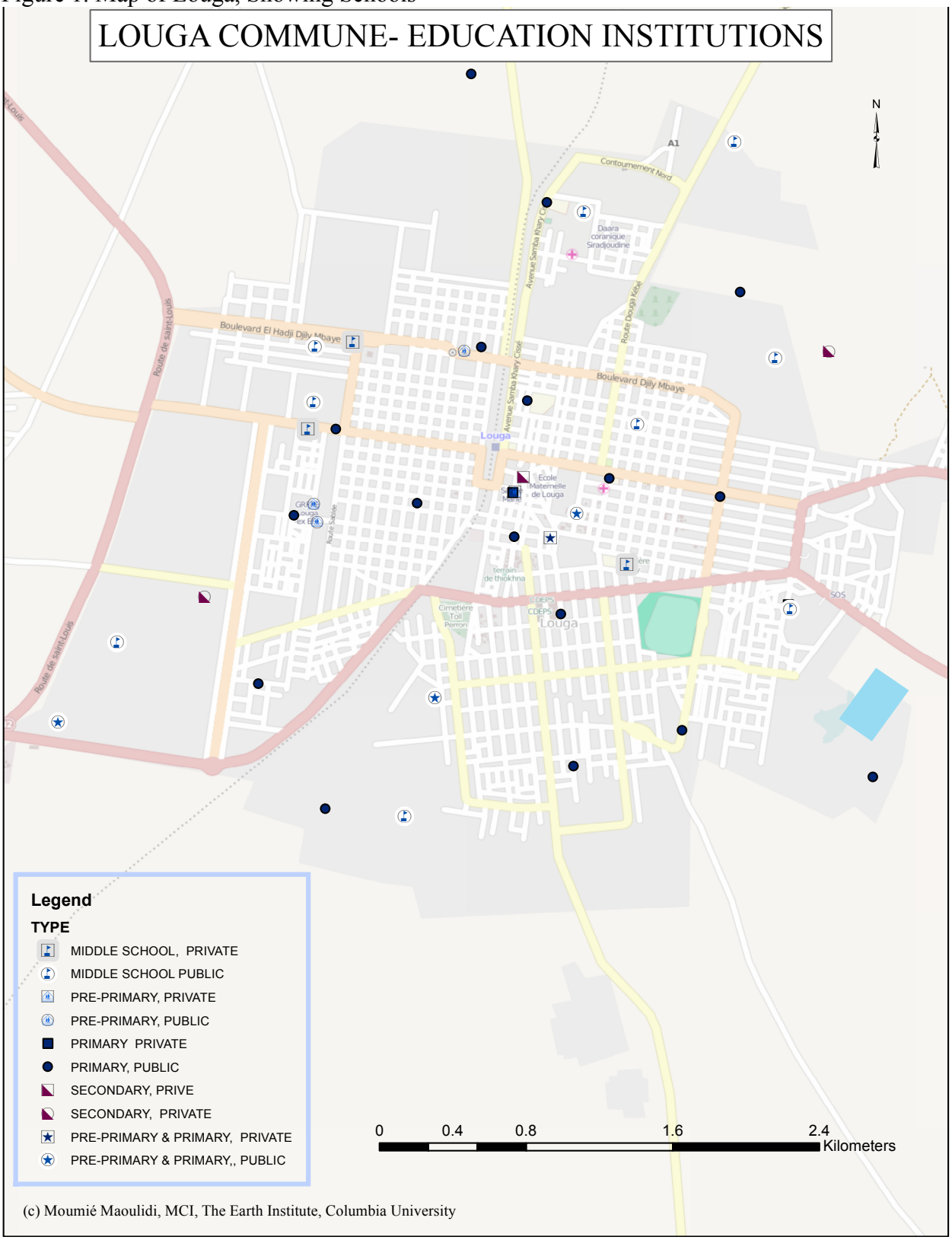
Figure 1. Map of Louga, Showing Schools



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ABBREVIATIONS

AFDB	African Development Bank
ANPECTP	*Agence nationale de la petite enfance et de la case des tout-petits* – National Agency for Early Childhood and Pre-Primary Institutions
ANSD	*Agence nationale de la statistique et de la démographie* –National Agency for Statistics and Demography
APC	*Approche par competence* – Competency Based Approach
BAC	*Le diplôme du baccalauréat* – Baccalaureate Diploma
BEP	*Bureau des examens professionnels* – Professional Exams Office
BFEM	*Brevet d'études moyennes* – Diploma of Graduation from Middle School
CAP	*Certificat d'aptitudes professionnelles* –Certificate of Professional Competency
CASE	*Caisse d'assistance et de solidarité éducative* –Social Security and Educational Solidarity Fund
CIDA	Canadian International Development Agency
CP	*Cours préparatoire* – Preparatory Class
CDET	*Comité départemental d'éducation de base pour tous* – Departmental Committee for Universal Basic Education
CEB	*Curriculum de l'éducation de base* – Curriculum for Basic Education
CEFAM	*Centre de formation et d'appui aux métiers* – Training and Career Support Center
CEM	*Collège d'enseignement moyen* – Middle School
CETF	*Centre d'enseignement technique feminine* – Technical School for Females
CFEE	*Certificat de fin d'études élémentaires* – Certificate for Graduation from Primary School
CFSEFI	*Certificat de fin de stage de l'école de formation d'instituteurs* – Teachers Training College Internship Completion Certificate
CGE	*Comité de gestion de l'école* –School Management Committee
CREE	*Créez votre Entreprise* –Create your Business
CREPA	*Centres de ressources éducationnelles polyvalents pour adultes* – Multipurpose Educational Resource Centers for Adults
CRET	*Comité régional d'éducation de base pour tous* – Regional Committee for Universal Basic Education
CRETF	*Centre régional d'enseignement technique feminine* – Regional Technical Training Center for Females
DAEB	*Direction de l'alphabétisation et de l'éducation de base* – Literacy and Education Department
DAGE	*Direction de l'Administration générale et de l'équipement* – Department of General Administration and Equipment
DEPEE	*Direction de l'éducation préscolaire et de l'enseignement élémentaire* – Pre-primary and Primary Education Department
DEPS	*Direction de l'éducation préscolaire* – Pre-primary Education Department
DIPE	*Développement intégré de la petite enfance* – Integrated Early Childhood Development
DPRE	Direction de la planification et de la réforme de l'éducation
ECB	*Ecole communautaire de base* – Community Basic School
EFI	*Ecole de formation des instituteurs* – Primary Teacher Training College

EGEF	*Etats généraux de l'éducation et de la formation* – Education and Training Special Assemblies
ENS	*Ecole normale supérieure* – Normal Graduate School
EPSSim	*Modèle de simulation des politiques et stratégies éducatives* –Education Policy and Strategy Simulation Model
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
GERME	*Gérez mieux votre entreprise* – Improve your Business Management
GNP	Gross National Product
GPI	Gender Parity Index
GTZ	German Technical Cooperation
IA	*Inspection d'académie* – Academy Inspectorate
IDEN	*Inspection départementale de l'éducation nationale* – Departmental (Provincial) Education Inspectorate
ILO	International Labour Office
ISFSA	*Institut de Formation Sanitaire* – Health Training Institute
ISM	*Institut supérieur de management* – Graduate Management Institute
ISMDB	*L'Institut africain de santé sociale Mame Diarra Bousso de Louga* – Mame Diarre Bousso Institute for Social Health of Louga
ITA	*Institut de technologie agricole* – Institute of Agricultural Technology
JICA	Japan International Cooperation Agency
MCI	Millennium Cities Initiative
MDG	Millennium Development Goals
MENETFP	*Ministère de l'éducation nationale, de l'enseignement technique et de la formation professionnelle* – Ministry for National Education, Technical and Professional Training
METFP	*Ministère de l'enseignement technique et de la formation professionnelle* – Ministry of Technical and Vocational Training
MINEDU	*Ministère de l'Education* – Ministry of Education
ONFP	*Office de formation professionnelle* –Professional Training Agency
NGO	Non-Governmental Organization
PAPA	*Projet d'appui au plan d'action de l'alphabétisation* – Literacy Action Plan Support Program
PASEC	*Programme d'analyse des systèmes éducatifs* – Educational Systems Analysis Program
PC	Physics, Chemistry
PDEF	*Programme décennal de l'éducation et de la formation* – Ten-Year Education and Training Program
PDRH	*Programme de développement des ressources humaines* – Human Ressources Development Program
PDSEC	*Plan de développement social, économique et culturel* – Economic, social and cultural development plan
PNDE	*Projet national pour le développement de l'éducation* – National Project for Education Development
RDA	*Responsable départemental de l'alphabétisation* – Departmental Literacy Head
RGPH	*Recensement général de la population et de l'habitat* – General Population Census

RRA	*Responsable régional de l'alphabétisation* – Regional Literacy Head
SCOFI	*Comité de la scolarisation de la fille* – Committee for Girls Education
SIG	*Système d'information de gestion* – Information Management System
SNERS	*Système national d'évaluation des rendements scolaires* – National Education Efficiency Evaluation System
SVT	*Sciences de la vie et de la terre* – Life and Earth Sciences
TVET	Technical and Vocation Education Training - *Enseignement technique et formation professionnelle (ETFP)*
TRIE	*Trouvez votre idée d'entreprise* – Find your Business Idea
UCAD	*Université Cheikh Anta Diop* – Cheikh Anta Diop University
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank

EXECUTIVE SUMMARY

This needs assessment evaluates progress made by the city of Louga, Senegal, towards the attainment of the education-related Millennium Development Goals (MDGs). It analyzes the current situation and presents the results of a costing exercise conducted by Millennium Cities Initiative (MCI) and the mayor's office in the city of Louga.

The education sector in Louga is constantly evolving, with significant recent progress. The number of students and teachers has increased, with the primary school gross enrollment rate (GER) growing from 100 to 122 percent between 2002 and 2009. Disparities between girls' and boys' enrollment are also decreasing.

The municipality recently identified several neighborhoods in need of educational improvements, including Montagne Nord, Artillerie Nord, Keur Serigne Louga Est and Santhiaba Nord. The city's suggestions include building 18 classrooms, rehabilitating schools and providing learning materials. The goal is to ensure that all the children in Louga have access to education and complete five or six years of quality primary education by 2015.

The lack of financial resources, as well as insufficient schools, classrooms, books and water points are the main constraints on achieving universal primary education by 2015. Some public schools are still relying on temporary shelters— makeshift classrooms often made of thatched straw and tree branches— until permanent classrooms are built. Despite collaborative efforts undertaken by the central government and local authorities, classrooms, as well as administrative and staff units require rehabilitation, and separate bathrooms for girls and boys need to be built. Although several secondary schools have been built in recent years, enrollments have not increased significantly, leaving this as an ongoing challenge.

Education quality and internal efficiency also need to improve. Teachers are not properly trained, not well paid, and repetition and drop-out rates remain high. Many primary schools students are therefore poorly educated, and some do not complete the primary school cycle.

The results from the needs and costs assessment model utilized in this assessment show that an annual per capita investment of $30 (15,165 CFA) between 2012 and 2015 can help the city of Louga to achieve education-related Millennium Development Goals by 2015.[1]

This report is divided in three sections. The first, a general description of the education system in Louga and Senegal, also defines the objectives, methodology and limitations of this needs assessment. The second section analyzes the data collected in the field and from city and national publications. The third section presents the costs of the interventions necessary to achieve the education-related MDGs, and the fourth section offers MCI's conclusions and recommendations.

[1] MCI employed the Education Policy and Strategy Simulation (EPSSim) model, a generic simulation tool developed by UNESCO for education planning.

I. INTRODUCTION

1.1. Context

Louga, the capital city of the Louga region in Senegal, is located north of the peanut-growing area on the road linking Dakar and Saint-Louis at the junction leading east to Linguère and Matam (200 km from Dakar and 75 km from Saint-Louis). Louga is made up of 12 neighborhoods (11 official neighborhoods and a special entity called Grand Louga).

According to the most recent Senegalese census, the population of Louga in 2002 was 73,662 inhabitants. Projections indicate that the 2011 population is 92,807, and by 2015 Louga will have 101,750 inhabitants. Similar to other Senegalese cities, Louga has a young population, with 46 percent under 15 years of age. There is a predominance of females (52.7%) over males (47.3%), a phenomenon explained in part by the emigration of men out of Louga. Complicating this demographic snapshot, since the 1970s, there has been sufficient environmental degradation, which has caused populations from neighboring villages to migrate to the city.

With a population growing at around 2.3 percent a year, the demand for schooling among young people is increasing.

1.2. Objectives

This needs assessment examines the challenges facing the city of Louga in order to achieve MDGs 2 and 3, which seek to achieve both universal primary education and gender parity at all levels of education by 2015. The report also identifies interventions that will enable Louga to reach these targets.[2] Finally, this study estimates the cost of these interventions.

1.3. Methodology

The research methodology includes an analysis of administrative data on pre-primary, primary, middle, secondary and technical schools, as well as on technical and vocational institutions from sources such as the Louga Academy Inspectorate (AI) and the Departmental Education Inspectorate (IDEN).

1.4. Limitations

The 2002 census provided precise data on the school-age population at the different school levels. However, population projections were carried out using different growth rates, which caused an underestimation or an overestimation of the school-age population and of the gross enrollment rate (GER).[3] The majority of the education data used were provided by the Louga AI and IDEN, but the GERs and the gender parity index (GPI) were not available, so it was necessary to calculate them. Additionally, unit costs were not always up to date when doing this research.

[2]The MDG results will also be used to update the city's official Economic, Social and Cultural Development Plan (PDSEC).
[3]Demographic projections were carried in 2004, 2006 and 2010.

1.5. Education in Senegal and in Louga

The education system in Senegal consists of five levels: pre-primary, primary, middle, secondary and higher education. Primary education consists of three cycles, each lasting two years (CI and CP, CE1 and CE2, CM1 and CM2), with a Certificate for Graduation from Primary School (CFEE) at the end of the third cycle. Middle school ends with a Diploma of Graduation from Middle School (BFEM) exam, while the Baccalaureate Diploma (BAC) is awarded upon completing secondary education, as shown in Figure 2.

Figure 2. Education System in Senegal and Louga

Level	Age	Class	Comments
Pre-primary	4	Younger section	3-4 years of study
	5	Middle section	
	6	Older section	
		Transitional class	
Primary			Mandatory schooling for 6 years
	7	CI - Initiation class	
	8	CP - Preparatory class	
	9	CE1- Elementary class first year	
	10	CE2 - Elementary class second year	
	11	CM1 - Middle class first year	
	12	CM2 - Middle class second year	
Certificate for Graduation from Primary School (CFEE)			
Middle			Middle technical school lasts 4 years
	13	Grade 7 (*sixième*)	
	14	Grade 8 (*cinquième*)	
	15	Grade 9 (*quatrième*)	
	16	Grade 10 (*troisième*)	
Diploma of Graduation from Middle School (BFEM)			
Secondary			Secondary technical education also exists and lasts between 2 and 5 years
	17	Grade 11 (*seconde*)	
	18	Grade 12 (*première*)	
	19	Grade 13 (*terminale*)	
Baccalaureate Diploma			
Higher	20 years old and above	University	Requires between 5 and 8 years of studies
		Technical and vocational training	

The Education and Training Development Program (PDEF) governed the primary and middle schools sub-sectors for the period beginning in 2000, in order to oversee the attainment of all Millennium Development and "Education for All" Goals by 2015.[4] The first phase of the PDEF (Phase I) was implemented between 2000 and 2004, when progress was made in widening access to primary education. The second phase of the PDEF (Phase II) was implemented between 2004

[4] The PDEF is aimed at achieving universal education by 2015.

and 2007, with the priority of improving the quality of teaching and learning.[5] Training sessions for teachers (didactic, lessons planning, classroom management) appear to have helped foster progress toward these goals. The third phase of the program (Phase III), which is currently being implemented (2008-2011), aims to improve the management and coordination of the education sector by imposing (in theory) a yearly education calendar of 900 hours, revising the curricula and standardizing evaluations.

Under a 1996 law, legislators transferred key education responsibilities to regions, towns and villages, including school management (Boubacar and François, 2007).[6] Since the advent of decentralization in 1997, the Ministry of Education has created 11 Academy Inspectorates (AI) at the regional level and 43 Departmental Inspectorates (IDEN) at the provincial level. The central administration (DAGE) makes budget transfers to these decentralized bodies and to schools.[7]

Local authorities (towns and villages) manage primary schools, while regional councils manage middle and secondary schools. According to a UNESCO document written by Boubacar and François (2007), the local authorities and regional councils are supposed to cover the costs of classroom construction, facilities, upkeep, maintenance, textbooks and equipment. The city of Louga is currently in charge of equipment, upkeep and maintenance of public schools. According to the 1996 act, the State is only responsible for covering staff salaries. However, in reality, operating costs are still administered by the DAGE, AIs and IDENs (Boubacar and François, 2007).

The Ministry of Education recently developed a new competency-based curriculum for primary schools. The curriculum establishes a framework promoting a common methodology across subjects based on how students can apply learned skills to solve real-life problems. The Canadian International Development Agency (CIDA) recently launched a project to support the training of all primary school teachers in the new curriculum.

Even though Senegal has designated the attainment of quality universal primary education by 2015 as a key priority in the education sector, retention is not improving at the same rate as access, and, as a result, completion rates remain low (51 percent). Specifically, many students fail the seventh grade (*sixième*) entrance exam and do not receive their Certificate for Graduation from Primary School (CFEE).

Education in Louga

In 2009 the city had 13 pre-primary facilities (three nurseries, one children's hut and nine private day-care centers), 29 primary schools (six of them private), 11 middle schools (five private), one technical middle-school (CEMT) and four secondary schools, one of which is a Franco-Arabic school and the others are private, as shown in Table 1.

[5] In 2000, the Senegalese government began to reform the Senegalese education system. The PDEF is a policy and budget framework developed by the government and implemented by the Ministry of Education (ME) to lead the necessary reforms. It is also a tool for coordinating interventions with technical and financial partners.

[6] Senegal is divided in 14 regions, 45 departments, 103 urban districts and 110 communes.

[7] Department of General Administration and Equipment (DAGE).

Table 1. Schools in the City of Louga (2009)

	Public	Private
Pri-primary schools	4	9
Primary schools	23	6
Middle schools	6	5
Secondary schools	2	2
Total	35	22

Education is rapidly expanding in the city. According to data from Louga's IDEN, all children between the ages seven and 12 are enrolled in school. More girls are enrolled than boys, attesting to parents' increased awareness of the importance of education and to all the work of teachers, to achieve this result. There are enough schools, and they are appropriately distributed across the city, but about 27 percent of schools lack fences and toilets. [8]

Progress in the education sector can be attributed to the establishment of better management tools (such as the Information Management System), which has facilitated the collection, dissemination and analysis of data. However, additional classrooms are needed in six primary schools, and several existing classrooms need to be rehabilitated. A pre-primary school also needs to be built in Artillerie.

Despite its many improvements, Louga's education sector faces a number of challenges. Students do not receive enough hours of instruction; the annual teacher workload[9], which should be between 725 and 900 hours per year, has not been met because of such academic disturbances as teachers' and student strikes (Diop, 2011). Key problems range from difficulties in keeping track of teachers' schedules and the lack of synergy between education interventions, to a shortage of school desks and bad roads that impede access to schools.

A major challenge is the recruitment, training, deployment and management of teachers. Historically, most primary school teachers were recruited directly to work in schools without having attended a teachers' training college. Those working in primary schools are referred to collectively as "volunteers" even though they are paid, albeit at a rate lower than fully-trained and certified teachers. Those working in middle and secondary schools are referred to as contractual teachers. Volunteers and contractors are frequently deployed without adequate training and must wait several years before achieving full certification and civil service status. In the 1990s, volunteers only received 45 days of training, which contributed to the decline in the quality of education (Fadjri, 2010).

This situation has contributed to other educational challenges. For instance, teachers with "second class" status (e.g., volunteers or contractors) often lack motivation, and the training colleges designed to ensure their adequate development are overstretched by the large numbers of volunteer teachers, as well as by the new crop of recruits entering the field every year. In

[8] In the 2011 Commune de Louga report, the mayor's office recommends the construction of four primary schools in the neighborhoods of Montaigne Nord, Artillerie Nord, Keur Serigne Louga Est and Santhiaba Nord. It is not clear from the report whether this has occurred.

[9] The term 'teachers' workload' refers to the number of hours teachers work.

addition, there is an urgent need for science teachers (SVT, MATHS, PC) with undergraduate and master degrees.

Over the last three years, a distance-training program has been initiated, and teachers' training colleges have reduced the number of untrained teachers (Fadjri 2010). Currently, many teachers have teaching diplomas. Furthermore, the implementation of a sustainable training program for teachers; the development of a partnership between the city and the different education stakeholders (parent-teachers associations, programs, projects, etc.); the sound management of financial resources; and the strong strategic planning for different educational activities are all important assets which contribute positively to the expansion of education in the city.

Recently, MCI has partnered in Louga with the US-based non-government organization CyberSmart! Africa, to provide teacher training coupled with innovative technology solutions for African schools. Fourteen teachers of CEM de Grand Louga and CEM de Leona middle schools participated in workshops focused on integrating CyberSmart! Africa's adapted interactive whiteboard into their classrooms. Students are actively engaged in the classroom learning process as they share use of the interactive whiteboard over the course of a lesson. With this tool, students work together as a team, utilizing critical thinking and problem-solving skills in support of a core curriculum – math, reading, science, geography and history.

II. PERSPECTIVES ON EDUCATION SUB-SECTORS

2.1. Pre-primary Education

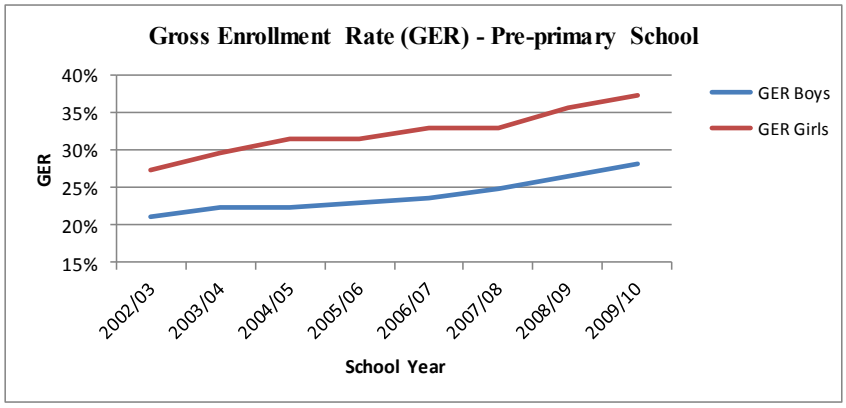
Pre-primary education has three levels (younger, middle and older sections), and students range from 4 to 6 years old.[10] A child who does not take part in these three sections must enroll in a transitional class (*classe transitoire*) before beginning primary school.

Formal private daycare centers, nurseries, and community daycare centers known as 'children's huts'[11] are the main sources of pre-primary education under the authority of the Pre-primary Education Department (DEPS), created in 2001, and the National Agency for Early Childhood and Pre-primary Institutions (ANPECTP), created in 2010. These two agencies are responsible for the expansion and harmonization of the pre-primary education system.

Figure 3 shows that changes in gross enrollment rates at the pre-primary level between 2002/03 and 2009/10.

[10] Some children may begin pre-primary education earlier, at two or three years of age.
[11] Children's Huts are community-based centers for children between 0-6 years old that integrate health, education and nutrition. They were initiated in 2000 by Senegal's president and aim to promote higher enrolment, learning achievement and completion in primary education.

Figure 3. Pre-primary Gross Enrollment Rates (GER) in Louga



Source: IDEN of Louga

Between 2002/03 and 2009/10, the number of pre-primary students grew from 1,846 to 2,914, an increase of 58 percent. However, currently, the private sector is the main provider of pre-primary education. Consequently, given the cost of tuition, the majority of Louga's students do not attend pre-primary schools. The gender parity index (GPI)[12] shows that since 2002-03, pre-primary schools have hosted more girls than boys.

Table 2. Evolution of Gender Parity Index (GPI) in Pre-primary Schools

School Year	GPI
2002/03	1.29
2003/04	1.32
2004/05	1.41
2005/06	1.37
2006/07	1.39
2007/08	1.33
2008/09	1.34
2009/10	1.32

Source: IDEN of Louga and MCI

The number of pre-primary facilities has grown recently, and in 2010, Louga had three public nurseries, one children's hut, and nine private pre-primary facilities. The government would like every primary facility to include a pre-primary school. The construction of children's huts can promote the expansion of pre-primary education.

2.2. Primary Education

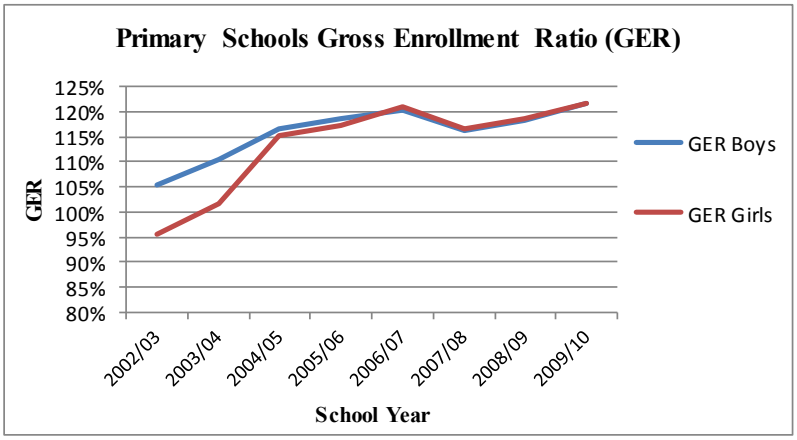
Primary school is mandatory and usually begins when a child is seven years old, ending when he/she is 12. Primary education is organized as follows: initiation class (CI); preparatory class (CP); primary class first year (CE1); primary class second year (CE2); middle class first year (CM1); and middle class second year (CM2). Students who finish CM2 receive a Certificate of Graduation from Primary School (CFEE).

[12] The GPI in a specific cycle is the ratio between the female and male gross enrollment rates (GER).

In 2006, the city of Louga had 29 French-medium primary schools comprised of 18 public and 11 private schools. In recent years, in collaboration with various partner organizations, the town of Louga has undertaken the rehabilitation of certain schools, with funding provided by the second phase of the Human Resources Development Program (PDRH2). The Artillery school is one of those that benefited from the program and was completely restored. Other schools raised their own funds to meet their rehabilitation costs.

The nature of education in Louga is changing rapidly; enrollment numbers are constantly increasing, the share of the private sector is becoming more important and girls represent nearly half of all enrolled students. School construction efforts sponsored by an array of education partners working with the city help explain this progression. The gross enrollment rate (GER) increased from 100 to 122 percent between 2002-03 and 2008-09, a 22 percent increase. Figure 4 shows the evolution of the GER between 2002 and 2008.

Figure 4. Primary School Gross Enrollment Rates (GER) in Louga



Source: IDEN of Louga and MCI

While enrollment rates have improved, other primary school indicators have fallen short of the objectives laid out in the 10-Year Education and Training Program (PDEF). For instance, completion rates remain low in the city, and repetition rates have been high. In 2008, primary school repetition rates were 11.3 percent. Specifically, the rate was over 10 percent in preparatory class (CP), primary class second year (CE2) and middle class second year (CM2). A study published by UNESCO mentions that, "there is a national policy dealing with repetition rates, aimed at discouraging repetition rates in primary schools" (Boubacar and François, 2007). The policy may have had some effect, because by 2009, the primary school repetition rate had decreased substantially, to approximately one percent.

The main challenges facing Louga in the education sector are related to poverty, the inadequate availability of latrines and migration patterns, as well as to recurring crises affecting the education system (student and teachers' strikes, non-payment of teachers' salaries, etc.). All of these factors have had a negative influence on attendance and explain high drop-out and student failure rates.

Primary schools in Louga are doing well because of a number of factors. These include the active engagement of the Committee for Girls Education (SCOFI) as well as high levels of parental involvement, including through parent-teacher associations; the support of partners and local authorities; the roll-out of standardized testing at the regional level; and important advances made by school principals in the field of Competency-Based Approach.

As shown in Table 3, the gender parity index (GPI) increased from 0.91 in 2002/03 to 1 in 2009/10. It is also important to note that the drop-out and repetition rates are higher for females than for males.

Table 3. Evolution of Gender Parity Index (GPI) in Primary Schools

School Year	GPI
2002/03	0.91
2003/04	0.92
2004/05	0.99
2005/06	0.99
2006/07	1.01
2007/08	1.01
2008/09	1.01
2009/10	1.00

Source: IDEN of Louga and MCI

Factors interfering with female education can be divided into two main categories: those stemming from Louga's socioeconomic and sociocultural context, and those relating to the conditions pertaining to the schools themselves.

Box 1

Socioeconomic and Sociocultural Factors	School Factors
• Poverty	• Lack of latrines and water points
• Household chores	• Punitive expulsion in cases of early pregnancy
• Cultural attitude of parents regarding schooling	
• Low prioritization of female education for daughters and mothers	
• Late school enrollment	

Source: IDEN of Louga and MCI

To improve the quality of education at the primary school level, the city needs to build new schools and rehabilitate temporary shelters, in accordance with water and sanitation standards in schools. Additional challenges include a shortage of schoolbooks and didactic support for the Curriculum for Basic Education (CEB), such as workbooks and illustrated storybooks;

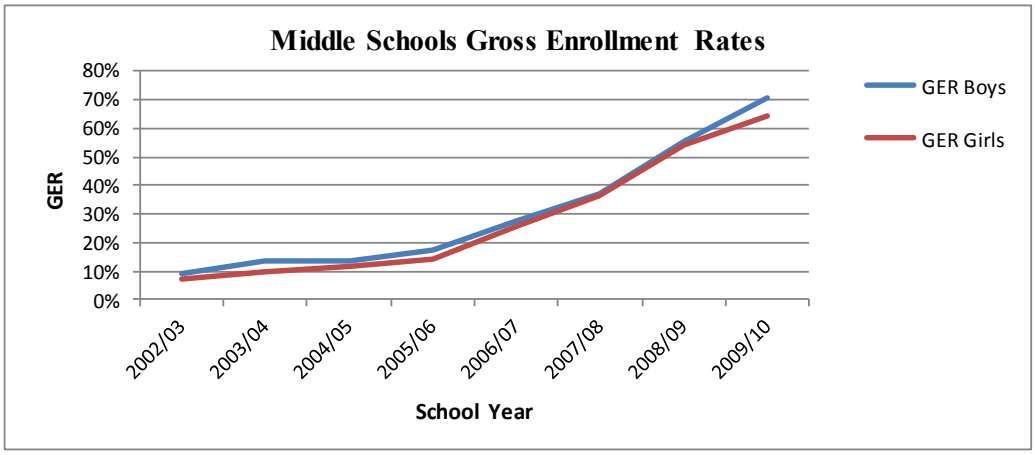
insufficient APC training for teachers; low teacher workloads and recurrent crises affecting the education system (e.g., strikes). [13]

On average, in 2008, the pupil-teacher ratio in public primary schools was one teacher for 45 students. The textbook-to-pupil ratio has been improving, with an increase from 1.4 to 1.8 between 2005-2006 and 2007-2008.

2.3. Middle School Education

The first cycle of secondary education, or middle school education, consists of four years of study: seventh grade (*sixième*); eighth grade (*cinquième*); ninth grade (*quatrième*); and tenth grade (*troisième*).[14] Students begin studies at 13 years of age and graduate at 16 years of age. The Diploma of Graduation from Middle School (BFEM) is awarded upon completion. There are also technical middle school programs, which last three years.

Figure 5. Middle School Gross Enrollment Rates (GER) in Louga



Source : IDEN and MCI

Middle school enrollment has increased slightly, with the percentage of females at this level increasing only from 43 to 45 percent between 2002/03 and 2009/10, in part because many girls fail the seventh grade entrance (*sixième*). Some Louga parents also prefer not to send their daughters to a faraway middle school due to safety concerns. Consequently, gender parity has not been reached. Table 4 shows the evolution of the GPI between 2002/03 and 2009/10.

[13] Low teacher workload refers to the number of hours teachers work. The official workload of teachers varies considerably among countries. In Senegal, school year in is supposed to include 900 hours of instruction (roughly 180 days of school) but most teachers teach between 725 and 900 hours, partly because of strikes.
[14] In Senegal, first cycle secondary school grade levels are named in descending order from *sixième* (Grade 7) to *troisième* (Grade 10).

Table 4. Evolution of Gender Parity Index (GPI) in Middle Schools

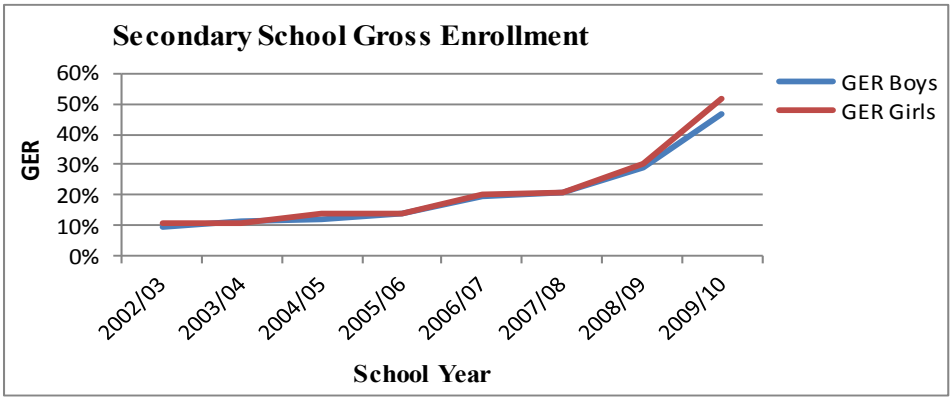
School Year	GPI
2002/03	0.80
2003/04	0.72
2004/05	0.85
2005/06	0.81
2006/07	0.92
2007/08	0.98
2008/09	0.98
2009/10	0.91

Source: IDEN and MCI

2.4. Secondary Education

The second cycle of secondary education usually begins when a student is 17 years old and ends when he/she is 19. It starts with grade 11 (*seconde*), grade 12 (*première*) and ends with grade 13 (*terminale*), culminating with the award of the Baccalaureate Diploma (BAC). Secondary technical programs also exist in Senegal, but Louga does not yet have a technical secondary school.

Figure 6. Secondary School Gross Enrollment Rates (GER) in Louga



Source : IDEN and MCI

Between 2002/03 and 2009/10, male enrollment increased by nearly 500 percent while female enrollment increased by 470 percent. As a result, even though female enrollment in secondary schools has been increased, gender imbalance is still an issue because male enrollment has outpaced female enrollment.

Several obstacles impede girls' participation and success in school. First, girls are the first to be taken out of school due to poverty. Also, the opportunity costs of sending girls to school are high, especially in poorer households, where school attendance can be perceived as a burden because girls carry out a significant portion of domestic tasks. Moreover, at the secondary school level, the costs of education are significant, and poverty compels individual heads of households to prioritize survival over education.

Table 5. Evolution of Gender Parity Index (GPI) in Secondary Schools

School Year	Gender Parity Index (GPI)
2002/03	1.14
2003/04	0.95
2004/05	1.15
2005/06	0.78
2006/07	1.06
2007/08	1.01
2008/09	1.05
2009/10	1.11

Source : IDEN and MCI

Secondary education presents similar barriers to girls' attendance and offers additional challenges, as described in Box 2 below.

Box 2

Socioeconomic and Sociocultural Factors	School Factors
• Prohibitive education costs	• Stereotypes in teaching-learning situations (teachers' attitudes…)
• Opportunity costs	• Teachers' sexist prejudices
• Early marriage	• Punitive expulsion due to pregnancy
• Lack of models to emulate	
• Early pregnancy	

2.5. Franco-Arabic Schools and Qur'anic Schools (Daaras).

In Senegal, certain populations are not inclined to educate their children exclusively in French and prefer Franco-Arabic education. In 2009, Louga had six Franco-Arabic schools hosting 796 students.[15] In recent years, Franco-Arabic education has evolved considerably, with Franco-Arabic schools now following the official curriculum and students enrolled in those schools counted in official statistics. Students graduating from Franco-Arabic schools can also receive the BAC and continue studying in Arabic, even though there are few Arabic higher education institutions in Senegal (Charlier, 2002). There is an important Islamic institute in Louga, a large complex, housing a dormitory and a mosque, funded by Saudi Arabia that teaches the Qur'an and Arabic language.

Qur'anic education is also important for the people of Louga, and Qur'anic schools are quite popular. Nevertheless, before 2002, Qur'anic school students were not considered as literate by the Senegalese school system (Charlier, 2002). According to Jean-Émilie Charlier, pressure from diverse international organizations has resulted in a shift in the government's policy towards Qur'anic schools (Ibid). Recently the Senegalese government also officially recognized Qur'anic schools.

[15] City of Louga Diagnostic Report 2011

Students in Qur'anic schools (*daaras*) are called talibés. The teachers, known as m*arabouts,*[16] generally have many *talibés*, who range in age from about six to 17 years old. In urban areas, *marabouts* commonly take advantage of the *talibés* and use them for panhandling purposes. Over the last decades, this phenomenon of *talibés*-panhandlers was mostly associated with Dakar, but recently, the Louga police reported a proliferation of *talibés* on the main road (Dieng, 2010; APS, 2010). As noted by Blackett (1998), "the economic exploitation of the *talibés* through Qur'anic schools is a very sensitive topic in Senegal because of the *marabouts'* considerable economic and political power."

Since 2006, a certain number of new *daaras* have been established, with the aim of developing a modern curriculum and teaching system. Indeed, there is a need for training that goes beyond Qur'anic studies.[17] *Daaras* have to be officially recognized in order to receive subsidies from the State. According to Kalidou Diallo, the Minister of Early, Primary, Middle and Secondary Education and National Languages, it is useful to take into account the number of students enrolled in the *daaras* because it leads to higher, and more realistic, school enrollment rates (Fadjri, 2010).

The *daaras* and the parallel Franco-Arabic schools system have prospered because parents and School Management Committees (CGE) actively support these types of schools. However, these institutions are also handicapped by the lack of partners who can support this sub-sector. Insufficient training for the CGE members and the absence of subsidies for Qur'anic and private Franco-Arabic schools are also major challenges.

2.6. Special Education

Special education for students with disabilities is still not well developed in Senegal and in Louga.[18]

2.7. Technical and Professional Training

The formal education system's failure to provide students with the skills necessary to advance in professional life partly explains Senegal's high unemployment rate (Bottani, 2007). For this reason, informal education is a meaningful alternative for those who have little chance of succeeding in the institutions described above. Not much is known about technical and vocational training (TVET) institutions in Louga, mainly because of their low enrollment rates. In addition, the TVET subsector does not significantly address the economic needs of the city by providing the appropriate training. The city has a few technical and vocational training institutions but does not have a technical secondary school. However, the support of the Luxembourg Agency for Development Cooperation (Lux-Development) in the field of TVET is a considerable asset. Louga has the following types of public TVET institutions.

Female Technical Training Centers[19]

[16] This is a term specific to francophone West Africa, and is used to refer to Islamic leaders and teachers.
[17] Traditionally, Qur'anic studies at this level only involve recitation.
[18] Reliable statistics on these special schools were not available for this report.

A number of specializations are offered, such as catering, hairdressing and sewing. Sometimes the centers also offer community vocational trainings that last three years. Students are recruited after ninth grade (*quatrième*) and are supposed to take the Vocation Qualification Certificate (CAP) exam. To facilitate students' placement after their training, a so-called insertion curriculum is taught, with units such as, 'Improve your Business Management,' 'Find a Business Idea' and 'Create your Business.'[20] Individualized trainings targeting women enrolled in cereal processing and baking or students at the Institute of Agricultural Technology (ITA) are also offered.

These institutions face difficulties because of the lack or shortage of suitable equipment. Some of the often-cited constraints are the weak basic skills level of students and inadequate teacher training.

Training and Career Support Center (CEFAM)
CEFAM has conducted trainings in several fields of study, in order to address the needs of the regional economy, including the following:

- Electric (domestic, motors)
- Metal construction (metalwork)
- Mechanical manufacturing (machines, tools)
- Car repair
- Sewing
- Hair dressing
- Refrigeration and home air conditioning
- IT- Entrepreneurship- Management
- Drafting
- Dyeing; Batik
- Food processing (local fruits, vegetables, cereals)

These programs target young professionals from different socioeconomic fields for professional development, youth apprenticing in handicraft businesses (both females and males) and uneducated or out-of-school youth and graduates of *daaras* and Arabic schools. Individualized training is also available. Training in CEFAM programs benefitted 1,040 students between 2003 and 2009. Since May 2010, CEFAM has been integrated in the public institutions system for technical and professional training. CEFAM remains under the authority of the Ministry of Technical and Vocational Training and is responsible for both degree programs (CAP and Professional studies certificate – BEP) and basic technical training. A diploma certifying that a candidate has completed middle school (BFEM) is the level required for recruitment.

CEFAM has developed important partnerships with the Professional Training Agency (ONFP), CESVI (*cooperazione e sviluppo*), an Italian charitable volunteer organization promoting peace

[19] We found female technical training centers in all departments of the region, with a total enrollment of 260 (257 women).
[20] "Improve Your Business Management" goes by the French acronym GERME (*Gérez mieux votre entreprise*), "Find a Business Idea" by TRIE (*Trouvez votre idée d'entreprise*) and "Create Your Business" by CREE (*Créez votre entreprise*).

education and cross-cultural friendship), the International Labor Office (ILO) and Lux-Development, with whose support CEFAM has organized several training sessions.

Primary Teacher Training College (EFI)
The Primary Teacher Training College (EFI) is one of the most important training institutions because of its high enrollment and high skill level of admitted students, who are recruited after the BFEM. In addition, some have a BAC diploma and others have studied at a university. EFI's mission is to train primary school teachers. Currently, enrollment numbers are well beyond the school's capacity.

In addition to these public institutions for technical education, there are also private institutions in Louga including the Graduate Management Institute (ISM), the Institute for Social Health of Mame Diarre Bousso of Louga (ISMDB) and the Health Training Institute (ISFSA).

Graduate Management Institute (ISM)
ISM opened in Louga in 2008, with an initial enrollment of 67 students. The school offers a specialization in management and administration, and students are recruited at two levels (BAC and BAC+2). In 2009, enrollment had nearly doubled, at 123 students, the majority of whom were female. Challenges include frequent power outages, inadequate numbers of local professors and insufficient student funds to pay tuition. It can also be difficult to find local businesses willing to take interns, and as a result, the school administration often sends students to intern with partner businesses in Dakar.

Institute for Social Health of Mame Diarre Bousso of Louga (ISMDB)
This private institution offers specializations in the health sector. It has been operational in Dakar for a decade and recently opened an institute in Diourbel. In 2008, a third institute opened in Louga with 96 students, 66 in 2009 and 74 in 2010.

Fields of specialization include:
- State Midwife, recruited after the BAC, for a recognized training of three years and a state diploma.
- Nurse Assistant, recruited after BFEM level, for a two-year training and a state diploma.
- Caregiver, with a lower recruitment level after 10th grade (*troisième*) and a school diploma.

Health Training Institute (ISFSA)
This institute is responsible for training state nurses and assistant nurses in programs that last two to three years.

2.8. Literacy

Literacy classes are typically held in Multipurpose Educational Resource Centers for Adults (CREPA). Active administrative committees and involvement of the literacy specialists benefit the literacy sector in Louga. However, efforts to improve literacy in Louga are hampered by several factors. The textbook/learner ratio in the CREPAs is adequate (1/1), but the student/desk ratio is inadequate, at five students per desk. In addition, the literacy centers do not yet cover the entire region.

III. FINANCING OF EDUCATION

Senegal allocates 40 percent of its national budget to education (Mbaye, 2011b).[21] While primary education is the government's main priority, it has also invested substantially to ensure that 90 percent of the children from six to 16 years old have access to basic education. Education spending has increased the number of teachers and schools, but the sector suffered due to the lack of training for teachers (ANSD, 2008). The internal efficiency of the education system is also limited by high repetition and dropout rates.

The city suffers from a limited budget, with most of the funds allocated to operational costs. Louga's limited financial resources have negative repercussions for its capacity to provide social services. Table 6 presents the city's budget in 2009.

Table 6. General Budget for the City of Louga 2009

	Recurrent Revenue	Extraordinary Revenues	Total Revenue	Recurrent Expenses	Capital Expenses	Total Expenses
Louga	734,074,625	209,080,737	943,155,362	535,629,118	130,554,246	666,183,364

Source: ANSD (2009)

Donors also provide financial resources. Major contributors to the education sector in Louga include the Japanese International Cooperation Agency (JICA); the African Development Bank (AFDB); the World Bank (WB); the United States Agency for International Development (USAID); the French Development Agency (AFD); and the Canadian International Development Agency (CIDA). The AFDB funded schools and institutional projects such as the construction of classrooms, while the AFD funded an equipment project for 80,000 FCFA. Thanks to the support of JICA, a plan was put into place for all school principals in each region. CIDA funded teachers' training in order to improve the quality of education. This funding contributed to improving the working conditions of teachers and students, but external donors' contributions remain volatile. Table 7 shows the mobilized financial resources in 2008.

Table 7. Mobilized Financial Resources (in FCFA) (2008)

Donors	Activities	Planned budget	Allocation	Expenditure
JICA		46497900	47217400	40721800
IDA		58502362	20955500	In progress
AFDB	Institution projects	35152001	16882889	In progress
	Schools projects	38337336	38337336	In progress
	SCOFI	2175000	2175000	In progress
Total AFDB		75664337	57365225	In progress
Total CNLS/UARL		8792250	8792250	8638125
Total French cooperation		2820350	2820350	2820350
CIDA/PAVE		25820422	25820422	24913422
Support for the Education System		168000000	14673720	12486140
General Total		387097621	177674867	89579837

Source: MINEDU/IA of Louga (2008)

[21] Also mentioned in an article written by Hamath Kane, see www.lagazette.sn/spip.php?article2733

The financial resources of Louga's communities are insufficient. Households contribute to education expenses (school fees, enrollment fees, transportation costs), but their contribution to capital expenditures is minor. Louga should consider organizing regular local and regional fundraising campaigns to attract new donors, such as the German Technical Cooperation (GTZ) or the Islamic Bank, and encouraging expatriate Louga residents to invest in schools in their native city.

EPSSim Simulation Results

The costs associated with developing the education system in Louga for the period between 2011 and 2015 were calculated using UNESCO's policy and education strategies simulation model (EPSSim). This generic model can be used at the national or municipal level to determine the costs associated with financial, infrastructure and human resources needs and is used by education specialists for planning and setting policy.

The model takes into consideration the numbers of enrolled students, teachers to recruit, classes to build and the budget gaps. It is also possible to specify alternative scenarios and to determine the resources needed under different assumptions. The data needed to make projections include the admissions rate; the GER; the repetition and dropout rates; class sizes; student/teacher ratios; and the numbers of classrooms and latrines.

The EPSSim simulations are calculated by education cycle (from pre-primary to graduate school, informal or formal sector). One Excel worksheet is used for each education cycle, and the information is distributed by category of inputs in the system (students, teachers, teaching materials, infrastructure), per gender and per education service provider (private and public). All of these elements are interdependent. To facilitate the utilization of the model, each education level is presented on a separate Excel worksheet, making it possible to calculate financial projections for each education level.

In this needs assessment, 2008 was chosen as the baseline year. Because of the lack of reliable data, it was not possible to carry costs projections for certain subsectors, including pre-primary, technical and vocational training, literacy, non-formal and graduate education.

Unit Costs

According to a recent Louga Commune report, building four primary schools costs $182,126 (80 Million FCFA).[22] Therefore, the unit cost for one school is $45,531 (20 Million FCFA). The cost of building 18 classrooms was also evaluated at $182,126 (80 Million FCFA), meaning that the cost for one classroom is $10,017 (4.4 Million F CFA). The unit costs for the teaching materials were found in a UNESCO document (Diagne, 2007).

The average teacher's salary was calculated in terms of a multiple of the Gross Domestic Product (GDP) per capita. Senegal's GDP per capita in 2008 was $1,142 [501,978 F CFA] (ANSD, 2009). Untrained primary school teachers were assigned a yearly average salary that corresponds

[22] $1= 439.26 F CFA in 2008, according to www.oanda.com

to approximately 3.5 times the GDP per capita, while trained teachers were assigned a salary of 6.9 times the GDP per capita.[23]

To estimate the costs of achieving MDGs 2 and 3, we used demographic data compiled by the ANSD, enrollment data provided by the IA and the IDEN of Louga and a list of infrastructure needs prioritized by the city. For example, the city expressed the need to build four primary schools in the neighborhoods of north Montagne, Artilerie Nord, Keur Serigne Louga Est, and Santhiaba Nord, as well as to rehabilitate schools in Keur Serigne Louga (east, south, north), Grand Louga east and Artillerie Nord. In addition, 18 classrooms must be built, and there are still schools without water points and separate bathrooms for girls.

Two alternative scenarios were simulated to calculate the costs associated with the achievement of MDGs 2 and 3. Five main variables are changed to determine costs: (a) the students/teacher ratio, (b) the students/classroom ratio, (c) the proportion of students who repeat a class, (d) the average teacher salary, and (e) the public education spending in percentage of the State revenues. The loss rate of teachers is estimated at three percent.

3.1. Scenario 1

The flow indicators for promotion, repetition and drop-out rates for Louga in 2008 were not available. Consequently, we used the average rates for the region of Louga presented in the Table 8.

Table 8. Flow Indicators for the Region of Louga

	Promotion		Repetition		Drop-out	
	Males	Females	Males	Females	Males	Females
Elementary	80.2	77.3	7.4	7.7	12.4	15
Middle	71.3	73.4	14.4	17.7	14.3	8.9

Source : ANSD (2009)

Untrained teachers earn 3.5 times the GDP per capita, while others earn 6.9 times the GDP per capita. Recurrent public education spending corresponds to 20 percent, while capital expenditures represent 15 percent of the GDP. Total education spending represents six percent of the GDP (it was 4.6 % in 2003). The average repetition rate is under three percent.

3.2. Scenario 2

We suppose teachers will be paid according to the new salary grid and that each untrained teacher earns 4.5 times the GDP per capita. We also assume trained teachers earn about eight time the GDP per capita. Education public spending corresponds to 20 percent, while capital expenditures represent 15 percent. The total education expenses represent eight percent of the GDP. The average repetition rate is under one percent.

[23] Teachers' salaries are generally higher in Africa (6 to 9.6 times the GDP per capita) than in other regions of the world (Mingat, Rakotomalala, Tan, 2002). Ndoye (2007) observes that, in 2003, teacher salaries in Senegal were about 6.2 times the GDP per capita.

Table 9. Hypotheses for Alternative Simulation Scenarios

	Scénario 1	Scénario 2
Pupil/teacher ratio (Primary)	40	45
Pupil/class ratio (Primary)	50	40
Total education spending as a multiple of GDP per capita	6%	8%
Average teacher salary (in GDP per capita)	3,5-6,9	4,5-8,0
% repeaters	3%	1%
Recurrent spending in education budget (%)	20%	26%
Spending on primary education in the education budget (%)	32%	30%

3.3. Simulation Results

Table 10 shows the results for the first scenario, where teacher salaries, recurrent spending on education and total education spending as a multiple of GDP are less than in the second scenario. However, we assume that repetition rates and pupil/class ratios are higher than in scenario two.

Table 10. Results for Scenario One (in F CFA and USD)

	2012	2013	2014	2015	Average
Total number of classrooms (Primary)	183	212	243	283	231
Total number of classrooms (Middle)	93	125	184	287	172
Number-other rooms (Primary)	15	17	19	22	18
Number of toilets needed (Primary)	20	23	25	28	24
Teaching positions needed (Elementary)	333	340	346	361	345
Teaching positions needed (Middle)	63	76	101	144	96
Elementary education (public)	5098	5489	6328	5232	5537
Recurrent Costs	2840	2989	3147	3389	3091
Capital Costs	2258	2501	3181	1843	2446
Secondary education I (public)	4149	6717	11247	16722	9709
Recurrent Costs	1204	1503	2053	3008	1942
Capital Costs	2946	5214	9194	13714	7767
Total (Elementary and Middle School)	9247	12207	17575	21954	15246
Recurrent Costs	4043	4492	5201	6397	5033
Capital Costs	5204	7715	12374	15557	10212
Total per capita costs (elementary and middle) in $	18	24	35	43	30
Recurrent Costs (per capita) in $	8.0	8.9	10.3	12.7	10
Capital Costs (per capita) in $	10.3	15.3	24.5	30.8	20

Total costs for primary and middle schools will reach $4.8 million (2 428 million F CFA) in 2015. Teachers' salaries are the most important component of these recurrent costs (91%).

In the second scenario (see table in appendix 1), the total costs for primary and middle schools will amount to $4.7 million (2 371 million F CFA) in 2015.

IV. CONCLUSION AND RECOMMENDATIONS

The education sector is a priority for the city of Louga and the government of Senegal. In spite of the important strides made since 2002 in improving education access, significant needs still have not been addressed. For example, most children in Louga do not participate in pre-primary education, and access to early education is limited due to the insufficient number of schools. The percentage of primary students unable to complete their primary cycle must be reduced, and students' skills in critical areas such as French, math and science require improvement.

In middle school, enrollment statistics have improved, but gender parity has not been reached, partly because many girls fail the entrance exam required to progress to the seventh grade. This indicates that there is a need to support remedial tutoring of girls in grades five and six (CM1 and CM2) to help them prepare for the entrance exam into seventh grade. Many new secondary schools have been built in recent years, but enrollment now needs to increase. The unsatisfactory number of secondary school participants seems to be linked to the low achievement rates in middle schools.

The quality of teaching itself should also be improved at all levels. Many strategies can contribute to improving educational quality; for example, the government could do its part by providing learning materials and books for teacher training and focus more on the training of both teachers and principals. The children's huts need furniture (tables, chairs, mats) and didactic materials (notebooks, paper, crayons), and would benefit from having the government support staff and provide for their training. Finally, the curriculum can be enhanced and reformed at both the primary and middle school levels.

The Louga Inspectorate Academy has benefited from the government's policy of providing free schoolbooks, which has improved education quality. Development partners should be encouraged to support the work undertaken by the government and local authorities to achieve universal primary education, by committing increased targeted aid flows and ensuring access to basic education.

REFERENCES

Agence de Presse Sénégalaise [APS], «A Louga: Il n'y a que les talibés sur le terrain» *Louga Web* URL : http://www.lougaweb.com/index.php?option=com_content&view=article&id=914&Itemid=82

Agence Nationale de la Statistique et de la Démographie [ANSD] (2004). *Projections de la Population du Sénégal issues du recensement de 2002* (Dakar: ANSD)

Agence Nationale de la Statistique et de la Démographie [ANSD] (2006). *Situation Economique et Sociale de la Région de Louga, Edition 2005* (Louga : ANSD)

Agence Nationale de la Statistique et de la Démographie [ANSD] (2006). *Estimations de la population du Sénégal de 2005 à 2015* (Dakar : ANSD)

Agence Nationale de la Statistique et de la Démographie [ANSD] (2009). *Situation Economique et Sociale du Sénégal, Edition 2008* (Louga : ANSD)

Blackett, K. (1998). "Le marabout et ses adeptes: Une relation d'exploitation ou d'interdépendance?" *Georgetown University*, Fall 1998, URL : https://www9.georgetown.edu/faculty/kokorap/studentprojects/africa/kendra/frenchfinal.htm

Bottani, N. (2007). "Afrique : modèles alternatifs de scolarisation," *Oxydiane,* (27 Septembre 2007). URL : http://www.oxydiane.net/politiche-scolastiche-politiques/evolution-des-systemes-d/article/afrique-modeles-alternatifs-de

Boubacar, N. and François, R. (2007), *Profil de pays établi pour le Rapport mondial de suivi sur l'éducation pour tous 2008. L'éducation pour tous en 2015, Un objectif accessible ? Sénégal, Etude de cas* (Dakar : UNESCO)

Bowman, J. M. et Anderson, C. A. (1980). "The Participation of Women in Education in the Third World" *Comparative Education Review*, 6(2), pp. S13-S32

Charlier, J-E. (2002). "Le retour de Dieu l'introduction de l'enseignement religieux dans l'École de la République laïque du Sénégal» dans *Éducation et societies*, 2(10), pp. 95-111

Commune de Louga, Gender Equitable Local Development [GELD] and l'Agence Régionale de Développement [ARD] de Louga (2011). "Plan de Developpement Social, Economique et Culturel (2012-2017)", (Louga: Mairie de Louga).

Diagne, A. W. (2007). "Etude de cas sur les coûts et le financement de l'alphabétisation au Sénégal." (Paris : UNESCO)

Dieng, A. (31 Août 2010). "A Louga: Il n'y a que les talibés sur le terrain." *Louga Web,* URL : http://www.lougaweb.com/index.php?option=com_content&view=article&id=914&Itemid=82

Diop, N. (4 Mars 2011). "Exigeant la fin immédiate de la grève des enseignants, des élèves de Louga menacent de s'immoler," Le peuple, URL : http://lepeuple-sn.com/index.php?option=com_content&view=article&id=535:exigeant-la-fin-immediate-de-la-greve-des-enseignants-des-eleves-de-louga-menacent-de simmoler&catid=45:education&Itemid=100

Diouf, T., Agence Nationale de la Statistique et de la Démographie [ANSD] et Direction de Prévision et de la Statistique [DPS] (2004). *Situation Economique et Sociale de la Région de Louga, Edition 2003* (Louga : ANSD)

Direction de Prévision et de la Statistique [DPS] (2002). *Banque de Données des Indicateurs socio-économiques du Sénégal (BADIS)* (Dakar: DPS)

Fadjri, W. (2010). "Année scolaire 2010-2011 : Kalidou Diallo effectue sa rentrée," Dakar Online Net, URL : http://www.dakaronline.net/walf-sn-Annee-scolaire-2010-2011-Kalidou-Diallo-effectue-sa-rentree_a7774.html

Hirtt, N. (2009) «L'approche par compétences: une mystification pédagogique» dans *l' Ecole démocratique,* 8(39), pp. 1-6

Institut africain de gestion urbaine [IAGU] et Centre des Nations Unies pour les Établissements Humains [CNUEH/UN-Habitat] (2002). *Profil environnemental de la ville de Louga* (Dakar : IAGU)

Institut africain de gestion urbaine [IAGU] (2003). *Programme VIH/ SIDA et gouvernance locale de la commune de Louga: Mise en œuvre, leçons et enseignements majeurs 2002* (Dakar : IAGU).

Institut africain de gestion urbaine [IAGU] (2006). *Programme VIH/ SIDA et gouvernance locale de la commune de Louga: Mise en œuvre, leçons et enseignements majeurs 2005* (Dakar : IAGU).

Kane, H. (2011). "Financement national de l'éducation, le Sénégal a oublié du lot des bons élèves," *La Gazette,* (23 Mars 2011) URL : http://www.lagazette.sn/spip.php?article2733

Mbaye, A. M. (2001). "Enseignement franco-arabe : La région de Louga va bénéficier d'un programme de construction de 100 écoles franco-arabe," *Le peuple,* URL : http://lepeuple-sn.com/index.php?option=com_content&view=article&id=680:enseignement-franco-arabe--la-region-de-louga-va-beneficier-dun-programme-de-construction-de-100-ecoles-franco-arabe-&catid=45:education&Itemid=100

Mbaye, A. M. (2001b). "Louga - L'environnement physique des écoles, une "plaie" dans le système éducatif," *Le peuple,* URL : http://lepeuple-sn.com/index.php?option=com_content&view=article&id=754:louga-lenvironnement-physique-des-ecoles-une-qplaieq-dans-le-systeme-educatif-&catid=45:education&Itemid=100

Michel, C. (1988). "Senegal" *World Education Encyclopedia,* ed. George Thomas Kurian (New York, NY: Facts on File).

Mingat, A., Ramahatra R., and Jee-Peng, T. (2002). "Le financement de l'Education Pour Tous en 2015 : Simulations pour 33 pays d'Afrique subsaharienne," *Africa Region Human Development Serie de Papiers de Travail 18*. URL : http://gretaf.univ-paris8.fr/gretaf/CommEPT_pdf/MINGAT_EPT.pdf

Ministère de l'Education [MINEDU] et Inspection d'Académie de Louga [IA de Louga] (2008). *Présentation de L'IA lors de la mission de supervision terrain (12 et 13 juin 2008)* (Dakar : MINEDU).

Ministère de l'Education [MINEDU] et Direction de la planification et de la réforme de l'éducation [DPRE] (2006a). *Curriculum de l'éducation de base : enjeux, processus d'élaboration et état d'évolution* (Dakar : MINEDU).

Ministère de l'Education [MINEDU] et Direction de la planification et de la réforme de l'éducation [DPRE] (2006b*), Le curriculum de l'éducation de base – Guide pédagogique du formateur* (Dakar : DPRE/ENEAS).

Ndoye, M. (2007). "Education pour tous : relever le défi du recrutement accéléré d'enseignants," URL : http://www.ciep.fr/conferences/CD_professionnalisation/bak/pages/docs/pdf_interv/NDoye_Mamadou.pdf

Réseaux d'information régionaux intégrés [IRIN] (2007). "Sénégal: Pour de nouveaux programmes d'enseignement dans les langues locales», *IRIN Africa*, 14 Septembre 2007, URL : http://www.irinnews.org/report.aspx?reportid=74294

Système d'Information Populaire pour les Collectivités Locales au Sénégal [SIPEEY] (2011). *Site Officiel de la Commune de Louga*. URL : http://www.sipsenegal.org/index.php?option=com_content&view=article&id=47%3Acommune-de-louga&catid=25%3Aregion-de-louga&Itemid=21&limitstart=8&44244d98397df0f446187c62156ca17d=575276a40ea0d2f3109111d01c0c5f19 (accédé le 20 Juillet 2011)

Social Impact Assessment and Policy Analysis Corporation [SIAPAC] (2004). *Framework local authority HIV/AIDS impact assessment and participatory planning toolkit* (Windhoek: SIAPAC)

APPENDIX

Appendix 1: Scenario 2 Results (in F CFA and USD)

	2012	2013	2014	2015	Average
Number of classrooms (Primary)	138	142	143	145	142
Number of classrooms (Middle)	75	106	167	284	158
Number-other rooms (Primary)	11	11	11	11	11
Number of Toilets (Primary)	15	15	15	14	15
Total Number of Teachers needed (Elementary)	305	303	302	309	305
Total Number of Teachers needed (Middle)	51	64	88	135	85
Elementary education (public)	3822	3774	3919	4008	3881
Recurrent Costs	3330	3424	3522	3711	3496
Capital Costs	492	350	398	297	384
Secondary education I (public)	4040	6856	12458	16722	10019
Recurrent Costs	1202	1531	2165	3351	2062
Capital Costs	2838	5325	10292	13371	7957
Total (Elementary and Middle School)	7862	10630	16377	20731	13900
Recurrent Costs	4532	4955	5687	7062	5559
Capital Costs	3330	5675	10690	13668	8341
Total per capita costs (elementary and middle) in $	16	21	32	41	27
Recurrent Costs (per capita) in $	9.0	9.8	11.2	14.0	11
Capital Costs (per capita) in $	6.6	11.2	21.1	27.0	16

Appendix 2: Data on Technical and Vocational Training Institutions

Technical and Vocation Training Schools and Institutions

Centers	Specialization	Student Enrollement			Length of Training	Recruitment Level
		Females	Males	Total		
CRETF/Louga	Crafts	201	0	201	-	-
CETF/Louga	Sewing Tailoring	20	0	20	-	-
CETF/Louga	Cathering Restauration	29	0	29	-	-
CETF/Louga	community vocational trainings	22	3	25	-	-
CEFAM	community vocational trainings	-	-	-	1 to 6 months	Elémentaire BFEM (2010)
EFI	Elementary education	128	257	385	9 months	BFEM

Specializations and Enrollment in 2009 for ISM, Louga

Specialization	Student Enrollement			Length of Training	Recruitment Level	Diplomas awarded
	Females	Males	Total			
Management	52	48	100	3 years	BAC	DSG
Management	11	12	23	2 years	BAC+ 2	EBBA
Total	63	60	123	-	-	-

Specializations and Enrollment at the ISMDB of Louga, in 2009/2010

Specialization	Student Enrollement			Length of Training	Recruitment Level	Diplomas awarded
	Females	Males	Total			
Midwifes	0	24	24	3 years	BAC	State diploma
Nurses	3	16	19	3 years	BAC	State diploma
Nurse assistants	4	7	11	2 years	BFEM	State diploma
Nurse's aids	3	17	20	2 years	Third class	School diploma

Source : Rapport diagnostic, Adama Guèye (2011)

Private Institutions in 2009, in the City of Louga

Centers	Specialization	Student Enrollement			Length of Training	Recruitment Level	Diplomas awarded
		Females	Males	Total			
ISM	Management	60	63	123	2 years	BAC and BAC+2	DSG and EBBA
I ASS/MDB	Nurse	16	3	19	3 years	BAC	State diploma
	Midwife	24	0	24	3 years	BAC	State diploma
	Nurse assitant	7	4	11	3 years	BFEM	State diploma
	Nurse's aid	17	3	20	3 years	Level third	State diploma
IFSA	Nurse	2	6	8	3 years	BAC	BEP
	Nurse assitant	3	7	10	2 years	BFEM	State diploma
Orbit Informatique Systic Louga	Computer science, accounting	13	10	23	Between 11 and 24 months	Level third	CAP BEP

Source : Rapport diagnostic, Adama Guèye (2011)

Appendix 3: Implementation timetable for the new basic education curriculum

Preschool

Period	Class	Object	Intervention level
2006/2007	Petite section	Extension	IDEN-IA
	Moyenne section	Testing	
2007/2008	Petite section	Roll-out	IDEN
	Moyenne section	Extension	
2008/2009	Petite section	Testing	IDEN-IA
	Moyenne section	Roll-out	
2009/2010	Grande section	Extension	IDEN
	Grande section	Roll-out	

Elementary

Period	Class	Object	Intervention level
2006/2007	CI	Extension	IDEN
	CP	Testing	
	CE1	Testing	
2007/2008	CI	Roll-out	
	CP	Extension	
	CE1	Extension	
	CE2	Testing	
	CM1	Testing	
2008/2009	CE2	Roll-out	
	CP	Roll-out	
	CE1	Roll-out	
	CM1	Roll-out	
	CM2	Testing	
2009/2010	CM2	Roll-out	

Functional Literacy Center (CAF)

Period	Class	Object	Intervention level
2006/2007	CAF	Extension	IDEN
2007/2008	CAF	Extension	
2008/2009	CAF	Roll-out	

Basic Community Schools

Period	Class	Object	Intervention level
2006/2007	ECB1	Testing	IDEN
2007/2008	ECB1	Roll-out	
	ECB2	Testing	
	ECB3	Testing	
2008/2009	ECB2	Roll-out	
	ECB3	Roll-out	
2009/2010	ECB4	Roll-out	

Source : MINDEDU/DPRE (2006a) and MINDEDU/DPRE (2006b)