5-2016

INADEQUACY OF BENIN'S AND SENEGAL'S EDUCATION SYSTEMS TO LOCAL AND GLOBAL JOB MARKETS: PATHWAYS FORWARD; INPUTS OF THE INDIAN AND CHINESE EDUCATION SYSTEMS.

Kpedetin Mignanwande
sergekpe@gmail.com

INADEQUACY OF BENIN'S AND SENEGAL'S EDUCATION SYSTEMS TO LOCAL AND GLOBAL JOB MARKETS: PATHWAYS FORWARD; INPUTS OF THE INDIAN AND CHINESE EDUCATION SYSTEMS.

Kpedetin S. Mignanwande

May, 2016

A MASTER RESEARCH PAPER

Submitted to the faculty of Clark University, Worcester, Massachusetts, in partial fulfillment of the requirement for the degree of Master of Arts in the department of International Development, Community, and Environment

And accepted on the recommendation of

Ellen E Foley, Ph.D.

Chief Instructor, First Reader

ABSTRACT

INADEQUACY OF BENIN'S AND SENEGAL'S EDUCATION SYSTEMS TO LOCAL AND GLOBAL JOB MARKETS: PATHWAYS FORWARD; INPUTS OF THE INDIAN AND CHINESE EDUCATION SYSTEMS.

Kpedetin Serge. Mignanwande

This paper explores the historical legacy that shapes the current higher education system in most sub-Sahara African countries. It further analyzes various specificities in terms of production of graduates in many sub-Sahara African higher educational schools, as well as the rate, process, and conditions of employment of newly graduated students. Inspired by the comparative advantage offered by the Indian education system in Information, Communication and Technology (ICT), and the Chinese education system in terms of technical skills and work readiness, the paper suggests an educational pathway that selects, orients and empowers students in these science related areas. It strongly emphasizes the promotion of entrepreneurship, touristic and agribusiness education at all levels of professional schools. Furthermore, it strongly advocates for the new learner empowerment approach that awakes and enhances the lifelong learning experience of the future sub-Sahara African employees.

ACADEMIC HISTORY

Name: Kpedetin S Mignanwande Date: May, 2016

Place of Birth: AB-Calavi, Benin Date: October 07, 1982

Baccalaureate Degree:

B.S. in Human Resources

Source: Polytech "Le Citoyen" Comprehensive Knowledge and Innovation Institutions

Date: November 28, 2008

Master Degree:

Development Project Management (courses completed)

Source: Polytech "Le Citoyen" Comprehensive Knowledge and Innovation Institutions

Date: November 26, 2010

Occupation and Academic Connection since date of master degree:

Graduate student, Clark University, International Development and Social Changes

2014 – 2016

Post-Conflict Researcher CDEL-Benin NGO

2008 – 2009

Magazine Editor at H&C Business Technologies Benin

2005 – 2008

DEDICATION

I dedicate this work to the people who mean most to me and for their unquestioned support and love:

My parents Eliane and Hubert,

My friends Harold, David, Karen, John, Mark, Linda, Michelle, Jessie, Steven and M.

ACKNOWLEDGEMENTS

I wish to thank Professor Ellen FOLEY for her guidance in the process of writing this MA paper. Professor FOLEY's open-minded, her solid experiences working with academics of/in sub-Sahara African for many years and her unique sense of empowerment has offered me the confidence and necessary motivation to embrace this wonderful journey.

I would also like to thank Professor Nigel Brissett, who is always available, very helpful and thoughtful, and ready to meet with me anytime I solicited his advices.

Lastly, I would like to thank all Kasperson Library staff, most importantly, Director B.J. Perkins for her patience, help, and undefeatable professionalism.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Africa loses $4 billion a year by outsourcing jobs in science, technology, engineering and math to foreign professionals, said Thierry Zomahoun, chairman and founder of the Next Einstein Forum; and for President Paul Kagame of Rwanda, there are too few students in science and engineering, and the lack of African women in these sectors is holding the continent back (World Economic Forum & Reuters, March 14, 2016). The current education system in most sub-Saharan African countries is shaped by a gap between labor demand and the programs offered by higher educational institutions. In most of these countries, the inadequacy between schools' programs and job markets has led to a situation where jobs are available but there are not enough suitable graduates to fill them (World Bank, 2014). This inadequacy may be partially linked to their colonial past, where, the purpose of education was mainly to train indigenous cadres, clerks, interpreters, teachers, nurses, medical assistants, and so forth. The system was therefore not development-oriented, but designed to serve the colonial system.

After independence in the 1960s, most post-colonial sub-Saharan African countries inherited a system of education shaped by their colonial pasts. Conflict of leadership among countries, period of instabilities due to ideological and socio-political conflicts within countries, bad governance practices, and various international pressures have negatively affected the socio-economic development of these formers colonies. Despite the re

markable efforts and successive educational reforms that had been conducted, the educational systems failed to meet the needs for economic growth and development. While access to all levels of education has been improved, these educational systems fail to respond to local and global employment imperatives.

The purpose of this research is to draw from the colonial legacy of Benin and Senegal, two sub-Sahara African countries, to analyze their higher education[1] policies and to see how effectively they relate to the employment market. More specifically, the paper postulates that there is inadequacy between the programs or job skills offered by the higher education systems of the countries and the real demand of national and international job markets, which are dominated by the Science, Technology, Engineering and Math (STEM) paradigm. The paper suggests that increased investment in human capital is needed in these fields of education as various literatures and dominant development paradigms have shown the direct impact of investment in human capital on employment and economic growth. In other words, Benin, Senegal and most sub-Sahara African countries should rethink their educational systems by directing a relatively important majority of higher education students toward the technical and technological fields of study, as it is being done in the Chinese and Indian education systems. This stance is supported in various studies and development thinking.

[1] Include senior secondary general, professional and technical schools and tertiary education level. For the purpose of this research, I will focus on three levels of higher education systems: the professional and technical education, the senior secondary education, and the tertiary education.

In its 2006-2008 Action Plan for Africa, the World Bank integrated higher education to its economic growth's strategy, considering that it has an impact on poverty alleviation. Moreover, in order to compete effectively in the global economy and to take advantage of the fast-changing global job market, all developing countries need to build capacity in Information Communication and Technology (ICT) skills for software development, production, use, and possibly; associated hardware (World Employment Report, 2001). Other studies have shown that a large pool of workers with secondary education is indispensable for knowledge diffusion and for attracting technologically advanced goods and foreign direct investment (Borensztein, de Gregorio, & Lee 1998; Caselli, & Coleman 2001; Xu, 2000).

Finally, training sub-Sahara African higher education students in science-related studies offers real possibilities for a technological breakthrough that may offer real employment and poverty alleviation opportunities as well as good governance and better delivery of public services. In its 1989 report, the World Bank stated that expanding Africa's capacity in producing its own intellectual talents to fill the highest scientific and technical jobs in educational establishments, in government, and in the private sector is a critical matter to be addressed in building for Africa's future (Summary of the World Bank Report, 1989). In other words, expanding and enhancing Africa's scientific and technological knowledge will help provide local development agencies, non-governmental organizations or community-based associations with the local skilled workers needed to bring about change, transparency, sustainability and efficiency in their development interventions. In

short, it helps train the graduates where jobs are and will be needed the most (World Employment Report, 2001, p.197-8).

The two questions guiding this research are:

1- What do higher education systems in Benin, Senegal and other sub-Sahara African countries need to look like to better meet the needs of local and global labor markets?

2- What are the possible lessons Benin and Senegal may learn from India and China to create their own comparative advantage?

Background

With the global recognition of the importance of education for the overall development of societies, as unanimously recognized during the World Conference on Education For All in 1990 in Jomtien Thailand; the United Nation's Resolution on the Role of Education in Economic and Social Development in 1997 in New York; as well as the World Conference on Higher Education in 1998 in Paris France; there is a wide acknowledgment today that long-term economic growth can only be achieved through investment in a highly skilled workforce. In the context of the knowledge economy, the expected role of sub-Sahara African higher education system has become particularly critical in this regard. After decades of expanding primary education systems, various literatures acknowledge the strategic role that higher education can play in economic and social development. For the purpose of this paper, three bodies of researches and international development thinking will

help emphasize this link. The first is related to the sustainable development discourse and its emphasis on the role for higher educational institutions to provide technical and technology related education to students in order to enable them to respond to sustainable development imperatives. This insight has been confirmed in the recent debates on the post-2015 development agenda with a focus on the role and place of higher education and technology. As the high-level panel report states: "What matters is not just having technology, but understanding how to use it well and locally. This requires the contribution of universities, technical colleges, public administration schools and well trained skilled workers in all countries." Currently in most sub-Sahara African countries, there is a lack of ambitious and sustainable ICT related educational policies despite the growing number of ICT businesses in the region. Table 1 describes eloquently the gaps in Sciences, Math, Technology and Engineering in sub-Sahara African higher education systems.

Table 1: University graduation rates between fields of studies in Africa (2008-2010)

Education, Humanities and Arts	Socials Sciences, Business and Law	Sciences	ICT	Engineering, Manufacturing and constructions	Agriculture	Health and welfare	Service Industries	Other
26%	44%	**12%**	**3%**	4%	**2%**	**5%**	%	7%

Source: EAO, UNESCO. 2012.

In this regard, the need for sub-Sahara African higher education system to comply with this development paradigm is more than necessary, given the current disproportion

between schools' programs and job market or development imperatives. This disproportion is further developed in the second literature, where, a body of researches showed that most sub-Sahara African universities struggle to respond to local and international job market demand.

In a recent study conducted by the British Council Commissioned Institute of Education focusing primarily on four sub-Sahara African countries: Ghana, Nigeria, Kenya and South Africa; all four countries face the common challenge of how to ensure universities provide the highest quality of work preparation for young people, since higher education in most of these countries does not produce the kind of graduates who can drive the region forward. In French speaking countries, especially in the cases of Benin and Senegal, the reality is almost identical. In Benin and Senegal as stated above, despite the economic importance of agriculture and the youths' interest in the sector, there are few technical and agricultural colleges and almost no training programs and funding opportunities. Increased investment in human capital is needed in these fields of education as various literatures have shown the direct impact of investment in human capital on employment and economic growth. This positive relationship between investment in human capital and employment, strongly supported by the World Bank, is further developed in another study conducted in Senegal.

The theoretical and empiric literatures of this study showed that increased investment in human capital leads to economic growth because better education increases the chances of getting better job and good revenue; hence, stimulate economy (Cissé, 2005).

In other words, the more educated someone is, the better are his chances to get a good job. And this is as relevant as university graduates such as engineers and technical professionals are among the best paid professionals in the country. According to African recruitment and temporary work agencies, the most difficult sectors in which to find candidates with tertiary education are those that need specific technical qualifications, such as the extractive industries, logistics, the chemical and pharmaceutical industries, manufacturing in general and agri-business (African Economic Outlook, 2012). It appears evident the need for sub-Sahara African higher educational institutions to rethink their training offer, since the large part of their trainings is currently given to social sciences studies, what has led to a situation of high unemployment rates among graduate students.

In Nigeria for example, the unemployment rate is as high as 23.1% for those with undergraduate degrees; while in South Africa, it is 5.9%. Unemployment figures specifically for university graduates in Ghana and Kenya show that across the 25–29 ages group as a whole (the range corresponding most closely with recent graduates) the unemployment rate is 41.6% in Ghana and 15.7% in Kenya. In Kenya, it takes a university graduate on average five years to secure a job (Going Global, 2014; Omolo, 2010). Among those who are employed, many are not engaged in graduate level works, or are not in works that correspond to their degree areas. At Secondary level, high school graduates report having trouble to find a job because of lack of demand. In fact, there is a large demand of labor for skilled jobs as IT, mechanics and factory technicians or for office jobs as accountants and managers. Graduates at both levels without qualitative technical training, transferable skills

and some work experience, face high unemployment experience (World Bank, 2014). The situation could be worse, given Africa's current higher education's enrollment data.

For the past decades, the enrolled higher education student has risen from 2,344,000 to 5,228,000 between 2000 and 2010. Based on current trends, 59% of 20-24 year olds will have secondary education in 2030, compared to 42% today. And Given Africa's high population growth, this may translate into 137 million 20-24 years old with secondary education and 12 million with tertiary education in 2030. In addition to the inadequacy of the training offer, sub-Sahara African education system lacks of adequate facilities and teaching staffs. As of today, there are 217,000 teaching staffs for sub-Sahara Africa compared to 10,983,000 for the world (UIS, 2012). The combination of these institutional, infrastructural, pedagogic and demographic pressures, urges sub-Sahara African policy makers to take strong actions in order to make the education system strong and effective.

Efforts should be made to facilitate the learning experience of these students. In a study cited in the 2010 Ghanaian Education Sector Performance Report, a similar stance has been taken by Somuah (2008). His study indicates that if Ghana wants to increase STEM education within 12 years, universities may have to peg their enrollment growth to 8% for science-related disciplines and 0% for the Arts/Humanities. Similarly, polytechnics have to increase science enrollment by 6% and Arts/Humanities by 1% (MOESS, 2010). Here, it is wise to nuance Somuah's position which may seem radical and discriminative. Instead, I argue that a coalesced position that offers a fertile ground to both social sciences

and the STEM should be prioritized, but the STEM should take lead, and this should start from the first year in senior high school. This stance encourages the right mix of policies where technical, professional, entrepreneurship and social sciences studies perfectly coalesce.

This paper offers a brief description of the colonial legacy that continues to shape these African countries. Thus, it tries to link this legacy with the current issues where the educational system produces graduated in the fields that are least relevant to the labor market. Using a recommendation framework drawn from the example of China and India, the paper suggests some changes to sub-Sahara African education systems in general, and to Senegal and Benin in particular. To conclude this research paper, I present my findings and recommendations to sub-Sahara African policy-makers.

Colonial Legacy

The French, and to some extent, English colonialists' first concern in educating sub-Sahara African population was to put in place an educational system that trained indigenous populations in fields that required less critical thinking and less technical and technological creativity. The training institutions adopted by the colonial system was presented as "innovative" and "modern"; as opposed to the discredited "traditional," and more comprehensive training methods. The systems varied greatly from region to region, period to period, and ranged from the most rudimentary form of primary education to the opening of universities.

Until 1930, primary schools predominated, “secondary” schools were rare, and there was a total lack of universities. Even by the end of the Second World War, few secondary schools had been created with the emergence of very negligible number of universities around 1958 (Devisse & UNESCO, 1985). Around 1960, the gross primary enrollment ratio in all sub-Sahara Africa was around only 36 percent. Many countries-including Gambia, Cote d'Ivoire, and Senegal in West Africa; Tanzania and Somalia in East Africa had literacy rates below 10 percent at the time of independence (Summary of the World Bank Report, 1989).

After the period of independences in the 1960s, various reforms had been conducted in partnership with UNESCO, the World Bank and other international institutions. The reforms aimed to Africanize the subject of the courses, to modernize the teaching techniques, to provide greater access to schools or universities, and to provide the logistic and the physical infrastructures that helped improve the quality of the teaching and learning. Such efforts had positively impacted the sub-Sahara African education systems in such a way that, between 1960 and 1983, the number of students enrolled in African institutions at all levels quintupled to about 63 million. Enrollments increased about 9 percent annually during the 1970s, doubling the rate in Asia, and tripling that in Latin America. At the tertiary level, the number of students enrolled in African institutions had reached 437,000 by 1983, growing from just 21,000 in 1960 (Summary of the World Bank Report, 1989).

Despite these remarkable efforts, it lacked the idea of rethinking the system to align the schools’ programs with the local and global contexts, needs and aspirations of African

countries (Devisse; Pliya, 1985). The situation in sub-Sahara African French speaking countries describes eloquently this inadequacy. Several reports and studies of the West African Economic and Monetary Union (WAEMU) have shown that the traditional education approaches utilized to date in francophone African countries mostly favor the development of academic and theoretical knowledge that is not adapted to the needs of the labor market. Such education is expensive and ill-suited to the various requirements of economic and social development in WAEMU member countries, as well as to the need for knowledge acquisition (African Development Fund, 2006). The current situation of higher education in Benin and Senegal reflects this inadequacy which has also been heavily influenced by the World Bank's, sometimes conflicting or inconsistent priorities, ideologies and economic development models across decades (Heyneman, 2005).

EDUCATION IN BENIN AND SENEGAL

Until now, the education system in many former colonial countries is shaped by their colonial legacy. Many schools, faculties, and programs, are still designed to train civil servants and other cadres less demanded by the current job market. Every year, between 7 to 10 million young Africans enter the labor market with increasingly limited opportunities for access to decent employment (Lututala, 2012)

Benin

Brief presentation of the country

Benin is a French-speaking tropical sub-Sahara African country, located in West Africa. It is bordered by Togo to the west, by Nigeria to the east, and by Burkina Faso and Niger to the north. Its capital is Porto-Novo, while the seat of government is in Cotonou, the country's economic capital. The country covers an area of approximately 115,000 square kilometers (42,000 sq. mi), and a population of approximately 9.98 million. Benin's economy depends largely on agricultural sector. The production of cotton is the country's main export, associated with the service industries, which contribute in large part to the GDP, because of Benin's geographical location enabling trade, transportation, transit and touristic activities with its neighboring states. Benin's educational systems consist of five levels of education: the preschool, the primary school, the secondary schools divided into junior and senior secondary school, the professional and technical schools, and the tertiary school. (Ness & Lin, 2013). A closer look at the organization and functioning of the secondary and tertiary schools will give us a better understanding of the current situation of education in Benin.

Organization of the Secondary and Tertiary Schools

Technical and Professional Education (ETFP)

Since the 1990s, after the conference on the general state of education in Benin, the technical and professional levels of education have become a national priority, seconding

the primary level of education. The State Department of Secondary, Technical, Professional Education, and the Professional Insertion of young people is in charge of this level of education. According to the Beninese **Decadal Education Development Plan (DEDP 2006-2015)**, the Technical and Professional schools offer six categories of training: The Administrative and Managerial Sciences and Techniques (STAG in French); The Industrial Sciences and Techniques (STI); The Agricultural Sciences and Techniques (STA); The Health Sciences (HS); The Familial and Social Economy (EFS); and the Hostelry and Restauration (HR). Most of these schools offer 6 years training, divided into two cycles of three years, except the (STA) which offers two cycles of four years (DEDP. 2006-2015). After completion of each cycle, students get a professional certificate or degree that should allow them to be competitive in the job market. Unfortunately, a very negligible number of students choose these technical and professional fields of study, as opposed to general education studies.

General Education Studies

In high school, general education encompasses four years in junior and three years in senior schools. After successful completion of a national junior school exam, students choose from options A, B, C and D for their senior years. The option A, called "A series", offers liberal arts and social sciences studies, the option B, called "B series", focuses on political economy and social sciences studies, the option C, called "C series", focuses on math and physics studies, and finally the option D, called "D series", where the dominant

study is biology, some math and physics. The "series" A, B and D have always had the highest enrollment record, as opposed to the "C series" and the technical and professional studies, even though the Technical and Professional levels have the highest rate of success, align with the STEM paradigm, and share common ground with the World Bank Human Capital discourse[2].

A comparison of the number of enrolled students and rates of success between both fields of study will give us a comprehensive view on the issue.

Tables 2, 3 and 4 give us a clear understanding of the performances of each field of education and allow some comparisons. Table 2 shows the number of enrolled professional and technical students from 2000 to 2005; and table 3 shows the number of enrolled junior and senior general high school students from 1994 – 2005.

Table 2: Enrolled technical and professional public school students 2000 – 2005

Years & Schools	1999 - 2000	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005
Stag	3008	2965	3311	2936	2611	2375
Sti	2586	3051	3262	3389	3221	3217
Sta	1086	1300	1486	1906	2201	2449
Hs	1494	1735	1974	3181	2801	2495
Efs	07	16	28	39	47	90
Hr	58	78	73	81	88	91

Source : Annuaire statistique ETPF 2005

[2] The Human Capital Theory sees a person's education as an investment in her/his human which makes the individual more productive and accrue him/her a future stream of benefits (superior productivity, higher wages and other non-monetary benefits to the individual and the society (Molungo, 2012)

These technical and professional enrollment numbers are highly negligible when compared with the general education students' enrollment numbers in table 3.

Table 3: Enrolled junior and senior general education students from 1994 – 2005

Levels	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Junior	88025	96000	105980	122.240	140592	158944	1774 55	195966	228309	238579	259099	314059
Senior	19018	20574	22276	23895	26493	29091	33151	37211	43864	44918	53612	63559
Rate of enroll-ment	15%	16%	17%	18%	20%	21%	23%	24%	27%	27%	28%	31%

Source: DPP/MEPS 2005

While the general education students have the highest rate of enrollment, they perform less and present the lowest rate of success to national exams. Table 4 and 5 compare the rates of success to national exams between both general education and technical and profes-sional students for further comparisons.

Table 4: Rates of success of technical and professional secondary school students to national exams from 1997 to 2005.

Years & schools	1997 - 1998	1998 - 1999	1999 - 2000	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004	2004 - 2005
Stag	41,9	34,4	51,8	45,8	37,7	25,7	36,4	30.5
Sti	65,2	73,1	48,7	44,6	43,7	39,9	60,6	56,4
Sta	97,6	63,7	100	97,9	100	99,5	99,5	100
Hs	97,2	98,6	94,7	92,6	100	91,5	93,4	87,7
Efs	66,7	100	63,6	100	100	100	100	

Source : Annuaire statistique DPP-METFP 2005.

The rates of success of technical and professional high school students are significantly higher than those of General Education students for the same academic school years.

Table 5: rates of success of general education secondary school students to national exam from 1994 – 2005.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Rate of success to general education high school national exams	27%	28%	38%	27%	34%	29%	34%	32%	41%	41%	42%	46%	

Source: DES/DEC 2005.

Professional and Technical Students perform much better than General Education students, and should have the highest enrollment rates, if the system was market oriented, in the current knowledge economy dominated by the STEM paradigm. Unfortunately, the General Education students have the highest rate of enrollment along the years. To correct these flaws, policy makers should encourage students toward technical and professional studies in order to produce the graduates where they are needed the most. This is particularly relevant to tertiary education.

The Tertiary Education

The tertiary level of education receives the new graduated of General Education senior high school, and the technical and professional senior high school students. As illustrated by the data, the vast majority of these new graduated have a background in social and fundamental sciences. Given the fact that, even at the tertiary school, the educational system is still built on the colonial models, most of these new graduates enroll in social sciences departments as illustrated in the tables 6 and 7.

Table 6: Enrolled students in public university in 2002

Enrolled students in 2002	
Departments of	
Fadesp (Law and Civil Services**)**	7316
Faseg (Economy and Management**)**	3032
Fast (Sciences and technic**)**	3254
Flash (liberal arts and social sciences**)**	10952
TOTAL FOR SOCIAL SCIENCES	**21300**

Source: MERS/2002.

The situation remained unchanged almost a decade later, as described in table 7.

Table 7: Enrolled students in public university in 2011

Enrolled in 2011	Enrollment rate
Field of study	
Education	3.7%
Humanities	16%
Social Sciences and law	54.1%
Sciences Programs	3.9%
Engineering, manufacturing, Construction, Agriculture	8.8%
Health and welfare	1.5%

Sources: Unesco/2011.

As a result of these flaws, Benin may have been investing millions of Francs CFA in its education system, the result remains insignificant, the rate of unemployment remains higher for social sciences graduate students with negative consequence on their employment experiences and the overall job market. Interestingly, the current priorities of the Beninese government do not seem to tackle these issues.

BENIN'S EDUCATIONAL PRIORITIES

The General Education School

The **Beninese Decadal Education Development Plan (2005 – 2015)**, prioritizes institutional and organizational reforms in senior high school. The first priorities are related to the management and the improvement of access to senior high school. In this regard, the plan suggests an adequate management of the flux of students coming from junior to senior schools, the inclusion of private sector's schools, and the promotion of apprenticeship for those who quit high school. A specific focus is given to improve girls' education at this level. The second priorities aim at improving the quality of education. In that respect, the plan focuses on improving the educational infrastructures, increasing the number and training of teachers, improving the internal efficiency and integrating the New Technologies of Information and Communication (NTIC) to the learning process.

The Technical and Professional Education (ETFP)

The Beninese **Decadal Education Development Plan**, emphasizes the adaptation of schools' programs to the job market's needs. In order to do this, the plan prioritizes organizational and institutional efforts, either to strengthen researches that help identify existing or potential employment opportunities, or to increase the access, quality and outcome of the (ETFP). In terms of access and equity, efforts are expected to improve the ETFP management and to focus on girl's education. In terms of quality and outcomes, the

priorities will be to increase internal efficiency by integrating the "competence based learning[3]" approach and the NTIC to the teaching methods, and to promote apprenticeship.

The Tertiary Education

At the tertiary level, the **Decadal Education Development Plan (DEDP)** follows similar objectives with the previous levels. Institutional and organizational actions are prioritized and investment in physical and human resources have been planned, with the objective of improving internal[4] and external[5] efficiencies. Such actions include the implementation of the LMD reform ('Licence-Master-Doctorate') which consists of a set of measures adopted by the states of West African Economic and Monetary Union (WAEMU). These measures include, the construction of new buildings, the recruitment of teaching staffs, the increase in science related researches and the promotion of girls' education. The DEDP recommends universities to put in place a graduated students follow up plan, in order to track the external efficiency at university level. The plan finally emphasizes the need for universities to encourage students toward Technical and Professional Tertiary schools, with the goal of enrolling by 2015, 50% of newly enrolled university students, among which, 15% should be the girls.

[3] Systems of instruction, assessment, grading, and academic reporting that are based on students demonstrating that they have learned the knowledge and skills they are expected to learn. (Godfrey Molungo, 2012)
[4] Links input to output in systematic fashion. It seeks to establish the more comprehensive and rationale relationship between quality and results in the school systems.

[5] How well the outputs of education match with the social needs.

Adult Alphabetization Program

The promotion of local languages through adult education has also been integrated to the DEDP. The goal is to reduce illiteracy rate among 15 to 49 years' population and to enhance their contribution to development.

The Key Observations:

The first observation relates to the rate of success to national exams between Professional and Technical Students, and General Education students. From almost the same period of time, it is quite obvious that the first group performs much better, and sometimes, even tend to double the performance of the second group. The second observation relates to the enrollment. As the data shows, there is a huge gap between the enrolled populations of both fields of education. Despite the higher rate of success in Professional and Technical schools, the majority of junior graduate students, are found in general senior high school. The technical and professional schools receive the lesser numbers of enrollment. In this global economy where the knowledge economy is the dominant paradigm, Benin's policy-makers should concentrate their efforts in enhancing the professional and technical studies. The third observation relates to the rate of unemployment. The available data (UEMOA, 2005) show the rate of unemployment of Professional and Technical students lower than that of general studies students. The fourth observation relates to the lack of entrepreneurship school or entrepreneurship training programs in the DEDP. As stated above, Beninese economy depends on agriculture, but also have a strong potential in touristic and service

industries. According to the Beninese National Agency of Employment Promotion, 12,804 job applicants were registered in 2012. These are secondary and tertiary education graduate students, with the two thirds of them holding a university degree and ready to work at lower position. Young people aged 15-35 constitute about 60.3% of the population (INSAE, 2002). Among these young graduates, many express the desire to launch their own businesses; however, their productivity is often questionable given the almost total lack of entrepreneurship-based policy, programs, or schools in the country. As has confirmed Alfred BIAOU, the Director of "Talents Plus," a West African-based recruitment firm, *there is a crucial need to encourage and strengthen the culture of entrepreneurship and risk taking in the minds of our young generation by taking initiatives that enable them to open and manage successfully their own businesses* (Impulsion des PME, 2007). The fifth observation reveals the lack of strong ICT related incentives. According to the DEDP, the country plans to integrate the ICT to the teaching methods. Given the importance of the ICT in the current labor market, such incentives may need to be strengthened if the country plans to have a comparative advantage in this field and in the region. Increased investment in ICT is needed, as various literatures link investment in human capital to employment and economic growth.

Senegal

Brief presentation of the country

Senegal is a French speaking country in West Africa. The country owes its name to the Senegal River that borders it to the East and North. Senegal covers a land area of almost 197,000 square kilometers (76,000 sq. mi), and has an estimated population of about 13 million. The climate is tropical and alternates between a dry season and rainy season. Dakar is the country's capital and largest city. Even though Senegal's economy relies to some extent on food processing, mining, textiles, tourism and imported petroleum refining industries, the artisanal fishing sector remains Senegal's main economic resource and major foreign exchange earner. The country has a good economic relation with major foreign countries such as India, China, the USA, Italy and the United Kingdom. Senegal's economic potential is important in various ways. The country has a strong potential in touristic industry and some of its richest agricultural land such as Casamance, are still underdeveloped due to lack of infrastructure or transportation means. Senegalese education system kept most of the infrastructure and curriculum of the French model of education. The system consists of a primary level of education that lasts for 6 years, a secondary school divided into lower secondary school (called middle school) and upper secondary school (called secondary school) which prepares for university or polytechnic institutes. Despite the country's commitment to free public education, Quranic schools are more attractive and prevalent in certain regions especially in rural areas. (Ness & Lin, 2013)

Organization of the Secondary and Tertiary Schools

Lower Secondary Education

This level of education aims at developing the student's observation, experimentation, analysis, synthesis and innovation capacity. At the end of the cycle, the graduated student earns the diploma of the end of middle school studies called BFEM (*Brevet de fin d'études moyennes*). Student enrolled in these classes will be taught: French, mathematic, English, History, Geography, the Sciences of life and earth, Spanish or Portuguese or German, Arabic, Latin and Greek, family economic and Physic Sciences. Table 8 shows the rate of transition from lower secondary to upper secondary schools in Senegal in 2013.

Table 8: Rate of transition from lower to upper secondary general education schools per city in 2013.

IA	Males	Females	Total
Dakar	67,2%	61,3%	64,1%
Diourbel	64,8%	57,3%	61,2%
Fatick	52,9%	48,9%	51,0%
Kaffrine	71,5%	63,3%	67,9%
Kaolack	71,0%	60,1%	65,9%
Kédougou	57,4%	42,4%	52,5%
Kolda	47,5%	37,8%	43,8%
Louga	74,9%	67,5%	71,3%
Matam	75,0%	68,6%	71,8%
Sédhiou	62,0%	58,7%	61,1%
St-Louis	78,4%	76,5%	77,4%
Tamba	63,5%	57,2%	61,1%
Thiès	78,7%	71,3%	75,0%
Senegal	67,6%	62,2%	65,0%

Source: Education Ministry of Senegal/2013.

These data show that a very negligible number of middle school graduates goes to the professional and technical upper secondary schools; while the vast majority goes to social science classes. Table 8 shows the rate of enrollment into scientific classes for newly graduated middle school students.

General Secondary Education Schools

This level of education prepares the upper secondary school students for tertiary education studies. Students at this level of education will learn: French, mathematic, English, History, Geography, the Sciences of life and earth, Physic Sciences, philosophy, economic, Spanish or Portuguese or German, Arabic, Latin and Greek. The graduated from General Secondary Education Schools earns the "Baccalaureat" which is the equivalent of high school diploma.

The Technical and Professional Schools

The professional and technical studies are considered as priority for Senegal's development. Given their direct link with job market and economic vitality, it is expected that the school systems provide technical and professional students with the required skills and knowledge that allow them to be competitive at national and international levels and to provide the country with the best development oriented manpower and ideas. Student enrolled in these fields will broadly study Sciences and Technic (S3); Sciences et Technologies, Agriculture and Environment (S4); Sciences and Technologies of Agribusiness (S5);

Mechanic Manufacturing (T1); Electronic (T2); and Management and Economic Sciences (G). Data from the Senegalese Education Ministry shows that only 7% of Secondary Education student goes to technical and professional fields of study. The rate remains very low in tertiary education.

The Tertiary Education

The bill of orientation 91-22 of February 16, 1991 specifies in its article 16 that the role of tertiary education is to train the skilled development agent capable of facing and answering the country's various development challenges. This requires specific research skill, technical, professional economic, cultural and political training from universities.

Table 9: shows the numbers of enrolled student in all fields of studies at University Cheikh Anta Diop of Dakar in 2000.

Faculties	*High school Graduated*	Enrolled students	Re-peat-	Do-mestic	Foreign students	Total
Social and Human Sciences	3513	2658	3465	9508	128	9636
Medical and pharmacy schools, Institute of Odonto-stomatologie	542	1966	696	2494	710	3204
Sciences and Technical studies	1288	1870	1151	4053	256	4309
Law and political Sciences	527	576	1334	2411	26	2437
Economic and management Sciences	725	588	922	2121	114	2235
Center of STI studies	17	32	0	44	5	49
Normal high school	0	0	0	0	0	0
Higher Education	168	350	0	484	34	518
Polytechnic School						
National Institute of Spor-tive activities	31	115	30	167	9	176
School of librarians	80	78	29	174	13	187
Total	6891	8233	7627	21456	1295	22751

Source: DPRE / MENETFP/2000

The highest enrollment numbers are in social sciences. The situation becomes critical in Sciences of Technology and Information (STI) field where we have only 49 students in the entire university. Data from Senegalese Education Ministry shows that almost 65% of secondary school students enrolled in social sciences studies at University of Saint-Louis and 51% at UCAD of Dakar in 2000.

SENEGAL'S EDUCATIONAL PRIORITIES

Similarly to Beninese Government, Senegalese educational systems follow a **Decadal Education and Training Development Program (DETDP)**, formulated in line with

the Educational Policy Letter 2000-2017. The main objectives of this DETDP are fourfold. The first objective aims at broadening access to education and training; the second seeks to improve the quality and effectiveness of the education system at all levels; the third aims at creating the conditions for an efficient educational policy coordination, and the fourth seeks to improve the resources management. According to the DETDP, priorities are given to Primary Education and the Professional and Technical Education.

Professional and Technical Education

In terms of Professional and Technical Education, the DETDP envisions to enhance the learning of Math, Sciences, Technique and the New Technology of Information and Communications. By doing so, the objective is to train each year from 2010, 20.000 new professional and technical graduates and to assure their full insertion in the job market. Some important organizational and institutional actions such as the construction of new buildings, the recruitment and training of new teaching staffs are integrated to the program to improving students' educational experiences.

General Secondary Education

In General Education, the Program emphasizes the need to orient students into Professional and Technical schools. Major organizational and institutional efforts have also been integrated to improve the quality, access, equity and survival of students.

Tertiary Level

At tertiary level, in addition to the construction and equipment of buildings to improve access and quality of education, the program envisions to increase researches, to align universities' curricula with the job market needs and to enhance the private schools' contribution. In terms of access improvement, the program envisions the creation of "*Université Polytechnique de Thiès* (UPT)"; the opening of regional colleges, "Collèges Universitaires Régionaux (CUR)" and the opening the faculty of Sciences and Technology of education. The main objectives of these efforts aim at enhancing the professionalization of the system, increasing the enrolled population of professional and technical students in universities such as Gaston Berger University (UGB) and subsequently, decreasing the overpopulated number of universities such as Cheikh Anta Diop University (UCAD). These efforts, if successfully implemented, should reduce the increasing gap between schools' programs and the job market and therefore, the graduate unemployment gap. However, some key observations are necessary in order to improve the employability of graduates and their impact on productivity and growth.

Key Observations

The first observation is the lack of strong and extended incentives in ICT. Unlike Benin, Senegal has already identified its potential for the ICT market, and according to the DETDP, the country plans to aligning tertiary education with its competitiveness and growth agenda. However, given the importance of the ICT in the current labor market,

such incentives may need to be extended to secondary and professional schools so that students can early be introduced and familiarized with this modern, necessary tools, if the country wants to enhance its lead in this field. The second observation relates to the low rate of enrollment into scientific classes. As described above, over 60% of secondary schools' students are found in social sciences schools or faculties. This contrasts with the current education paradigm that emphasizes the focus on STEM studies and the investment in Human capital to bring about socio-economic progress and development. The third observation relates to the availability of agribusiness and entrepreneurship training programs in the DETDP. As stated above, Senegal's economy has a strong potential in agriculture with very rich available land. In this regard, increased efforts should be made to encourage entrepreneurship and agribusinesses studies. It is true that Senegal is already working in this direction and needs to increase its efforts. The fourth observation lies in the fact that Senegal has already a good economic relation with India, China and many others countries. It can take advantage of this relation by aligning its higher education system with these countries comparative advantages in ICT and Technical knowledge. Finally, unlike Benin, the Senegalese Decadal Education and Training Development Program has not produced relevant statistical information to help understand the current trend and efficiency of higher education, even though it has had the merit of insisting on the importance of the ICT in the country's economic growth and competitiveness.

Common Patterns Shared by Benin and Senegal.

As described above, Benin and Senegal have ambitious Decadal Education Development Plan that aims at improving the education experience in both countries. They both plan to integrate the ICT to the learning process, but from different perspectives. While Benin plans to integrate the ICT to the learning methods in secondary and tertiary schools, Senegal wants to use them at university level to boost the country's competiveness and economic growth.

However, given the importance of the ICT for development, as Senegal seems to have seen, the studies in ICT should be compulsory from senior high school, and extended to university; not the opposite. In Benin, the ICT should be used as a tool to boost the country's competitiveness, employment and economic growth.

In terms of business development, as we all know, businesses are the most dynamic job creators. Unfortunately, both countries failed to integrate any formal entrepreneurship policies in their Education Development Plans. Both countries have a strong agricultural and touristic potential, but haven't thought about training and promoting touristic and agribusiness entrepreneurs whose jobs will be to create more jobs and stimulate economic growth.

In sum, Benin and Senegal's Higher Education Systems may have very ambitious development plans, but as the data show, these plans are still shaped by an historic legacy that restrains the school systems from responding to the job market and development

needs. This gap between universities and the labor market will keep growing, hence the necessity of rethinking the policies and establishing a close partnership with businesses owners by integrating their point of view, and ultimately, improving the effectiveness of the schools' programs with regard to the employment market and the country's development agenda as have done the Chinese and Indian policy-makers.

THE CHINESE AND INDIAN EDUCATION SYSTEMS

Context and Specificity of the Chinese and Indian Examples

The Chinese Policy Context

After repeated military defeats of Western nations in the 19th century, Chinese reformers began promoting modern science and technology as part of the Self-Strengthening Movement. When the Communists came to power in 1949, efforts were made to organize science and technology based on the model of the Soviet Union, in which scientific research was part of central planning. After Mao's death in 1976, science and technology were prioritized, and the Soviet-inspired academic system was gradually reformed.

Since the end of the Cultural Revolution[6], China has made significant progresses in all aspects of development. Since 1980, the country has developed a strong partnership

[6] a sociopolitical movement set in motion by Mao Zedong, then Chairman of the Communist Party of the People's Republic of China from 1966 until 1976. Its stated goal was to preserve 'true' Communist ideology in the country by purging remnants of capitalist and traditional elements from Chinese society, and to reimpose Maoist thought as the dominant ideology within the Party. During this period, many educated people, academic, scientists, educators, teachers had been persecuted or killed. The education system mainly in urban areas had suffered from what is referred to in the West as the Chinese "lost generation."

with the world and other international agencies. Between 1980 and 2010, over 320 development projects have been implemented in partnership with the World Bank with 47.4 billion dollars in loan and credit. But what has been the most important contribution of the World Bank to the Chinese development, was the Bank's expertise in socio-economic development (World Bank, 2010).

China has made significant investments in scientific research, with $163 billion spent on scientific research and development in 2012. Science and technology are seen as vital for achieving China's economic and political goals, and are held as a source of national pride to a degree sometimes described as "techno-nationalism". Nonetheless, China's investment in basic and applied scientific research remains behind that of leading technological powers such as the United States and Japan. Rapid economic ascendance has brought on many challenges as well, including high inequality; rapid urbanization; challenges to environmental sustainability; and external imbalances. China also faces demographic pressures related to an aging population and the internal migration of labor (World Bank, 2010). These historical and socio-political contexts have strongly shaped what has become the current Chinese education system.

Chinese Higher Education System

China's higher education system is recognized as the largest in the world, providing education for more than 23 million students. China is rapidly developing its education system with an emphasis on science, mathematics and engineering; in 2009, it produced over

10,000 Ph.D. engineering graduates, and as many as 500,000 BSc graduates, more than any other country. China is also the world's second-largest publisher of scientific papers, producing 121,500 in 2010 alone, including 5,200 in leading international scientific journals. Chinese technology companies such as Huawei and Lenovo have become world leaders in telecommunications and personal computing, and Chinese supercomputers are consistently ranked among the world's most powerful. Throughout the country, the connection between education and economic success is increasingly recognized. Indeed, with growing pressure of competition in the market economy around the 1980s, Chinese policy makers wanted to be prepared for china's burgeoning labor market. For this purpose, they made sure the education system encompasses opportunities for students to effectively become competitive as soon as students' entry into senior secondary school and throughout tertiary school (Ness & Lin, 2013).

In order to enter the senior secondary education, which is the equivalent of senior secondary education in Benin and Senegal, Chinese junior secondary students are required to take a locally administered entrance exam. This examination results determine if the students will either enter a regular senior secondary school (academic) or go to a vocational secondary school. Secondary vocational education in china has grown dramatically in the last two decades in response to the demand of an increasing student population who fail entrance exams that would allow them to continue senior secondary school education. Vocational schools typically offer two to four year programs that train medium-level skilled

workers, farmers, and technical personnel. Technical schools often provide four years' program that train intermediate managerial and technical personnel. With the pressure of recent educational reform to meet an increasing demand for skilled workers in a rapidly expanding economy, some regular[7] senior secondary school have been converted into vocational secondary school or have allowed vocational training classes to be established in their schools. Such efforts to divert students from an academic track to a vocational or technical track in order to alleviate skill shortages as well as to ease the tough competition faced by regular senior secondary school graduates to enter tertiary education have resulted in a dramatic increase in the student population participating in secondary vocation education. A report by the National Research Center on Education and Development shows that there were 11.6 million students attending secondary vocational schools in the year 2011. (Ness & Lin, 2013)

In 1999, the ministry of education developed a national education computer network called the China Education and Research Network (CERNET). This center had 12 regional and global channels that are connected with the USA; Canada; Great Britain; Germany; Japan; and Hong Kong. ((Ness & Lin, 2013). The objective is to use the CERNET as core education and development tool. First of all, the CERNET and the existing satellite video transmission system are expected to serve as basis of development and it is planned to make full use of the telecommunication resources of the country to further enlarge the

[7] Equivalent of the general secondary schools in Benin and Senegal

transmission capacity and network size of CERNET. Secondly, the CERNET should link all higher education institutions offering bachelor's degree programs and the thousands secondary schools. It should offer network access to the possible 50,000 home university and faculty members by the year 2000. Thirdly, the CERNET was expected to support the development of integrated information systems for the online enrollment of students admitted to Higher Education Institutions (HEIs); the computer-aided management of students; and the networking services for new graduated seeking employment. Finally, the CERNET should also help improve the satellite-relayed television education. In that sense, it was envisaged by the year 2000 that most schools in rural areas would be enabled to receive TV educational programs. As far as 2006, there were already over 1,500 universities and institutions connected and about 20 million end users. With this large scale network operation theory and technology research center, various researches are being conducted on basic theory and core technology of network operation such as operation organizing, network service or workflow of management, traffic data analysis and, mining and holographic measurement technology. These progresses made by the CERNET have enhanced the information infrastructure of china and boosted the learning and research process in the last few years (Ministry of Education PRC, 2006).

It is important to stress that these favorable academic environments had been facilitated by a political will, under the leadership of the Chinese President Jiang Zemin who understood in a visionary way, the place and importance of science and technology in the 21st century. As he pointed out in a memorable address in the beginning of the century "In

today's world, scientific and technological progress marked by the advancement of information techno1ogy happens with each passing day. The speed at which high-tech achievements transform into actual productive forces has become all the faster. The emerging knowledge economy betokens the coming of new and enormous changes in the socio-economic life of mankind." While approaching the 21st century, since knowledge economy with high-tech at the core will dominate, the comprehensive strength and international competitiveness of the nation will increasingly depend on the level of educational development and innovation in science, technology and knowledge. Educational development will remain a strategic priority. The extensive use of modern information technology in education will engender profound changes in the educational sector, and lifelong education will be a requisite condition for both educational development and socia1 progress. At present, the governments of many countries have made educational invigoration one of their basic policies towards the 21st century. These trends indicate profound changes in the scenario of education in the future. We should lose no time in preparing to meet the new challenges." (Chinese Ministry of Education, 1998). A similar stance has been adopted by the Indians Education policy makers.

The Indian Policy Context

Indian development progress has beneficiated in a large part from its long relationship with international institutions and western countries, but also from the qualitative choices made by its educational policy-makers.

As early as June 1944, India was one of the 44 countries which had signed the final agreement that established the World Bank. More importantly, India appoints its own Executive Director (ED). Furthermore, Indian Finance Minister is a member of the World Bank's Board of Governors. The Board lays down the Bank's basic policy guidelines and has the ultimate responsibility for decision-making within the Bank. The Boards of Governors has delegated all powers to the Executive Directors with some specific exception[8]. The Indian ED is based at the World Bank's headquarters in Washington DC. India's ED also represents Bangladesh, Sri Lanka and Bhutan. The country's continuous presence at the Board and the Executive Direction, enables it to play a significant role in the formulation, implementation and monitoring of the Bank's policies and operation, particularly from the standpoint of the developing countries. The Bank's work in India is closely aligned with the country's own development agenda as articulated in its Five Year Plans. Nevertheless, various literatures tend to nuance, or question the positive impact of the contribution of the World Bank to Indian economic progress (Ranganathan, 2003).

Furthermore, despite their colonial past, early after independence (1947), they had made sure to design a policy that used higher education as an efficient tool for academic fulfillment and workforce readiness. (Ness & lin, 2013). Immediately after independence, a Department of Education under the Ministry of Human Resource Development was set up on August 29, 1947 with a mandate of expanding the educational facilities. After 1960, the

[8] Each of the World Bank Group organizations operates according to procedures established by its articles of agreement, or an equivalent governing document. These documents outline the conditions of membership and the general principles of organization, management, and operations (World Bank, 2010)

focus on access gradually started moving towards quality. With that vision, the National Policy on Education was formulated in 1968. Over subsequent years, several policies have been formulated by the Indian government to ensure that the literacy level is gradually increased with a close monitoring of the quality of education as well. Retention of children in schools was of paramount importance in the years that followed. With several educational reforms, school drop-out rates have registered a decline and the gender gap of education also showing a dipping.

More recently, two prominent policies of the Indian government—the Sarva Shiksha Abhiyan (SSA) in 2001 and the Right of Children to Free and Compulsory Education (RTE Act, 2009) have seen education priorities rise amongst households and catalyzed improvements in educational performance.

Education remains a top priority for the Government of India, and is justified by the rising budgetary allocations. According to the 2011 census, literacy rate in India was found to be 74.04%. The emphasis on the values and importance of education in national development is expressed in the twelfth education development Plan (2012–2017), which places an unprecedented focus on the expansion of education, the significant improvement of the quality of education, and on ensuring that educational opportunities are available to all segments of the society (British Council, 2014). These historical and socio-political contexts have strongly shaped what has become the current Indian education system.

Indian higher education system

Similarly to China, Indian has one of the largest higher education system in the world and Indian's policy makers have taken the importance of higher education very seriously.

At the end of secondary schooling, students appear for board examination and their performance at this exam determines admission to higher education. Since the secondary school, students are required to learn Hindi and a regional language at the minimum and science, math, history, social sciences, geography and **introductory computer science**. Indian tertiary education is one the most dynamic in the world. In addition to several hundreds of state universities, there exists a large network of research and technology institutions focusing on divergent disciplines. Additionally, the government has established a university grants commission (UGC), a statutory organization designed to coordinate research and teaching efforts, and to maintain quality of the institutions. This institution provides research and teaching grant as well as policies advices to the government. More interestingly, educational programs focusing on science and engineering, agriculture, and information technology have expanded greatly in the post-independence era. Today the Indian Institutes of Technology is one of the leading institutions operating in that direction. This sciences-focused educational institution, yet highly subsided, expects to graduate 500.000 engineers and 1,2million scientists each year. ((Ness & Lin, 2013)

In contrast, human and social sciences have received far less financial and institutional support over the years. This is where sub-Saharan educational institutions and Benin

and Senegal in particular, need to take example from the Indian model. As we have described above, the educational system inherited from the colonial system was designed to train the civil servants, which is why the social sciences have taken the lead over the technical and vocational institutions. After the independence, not much has been done to change the direction. As a result, the social sciences have taken the lead in terms of students' enrollment since the independence days, and despite the dropout, thousands of tertiary graduated students end up in the job market, without the required skills needed.

Another inspiring example from the Indian model relates to the involvement of Private sector especially in the field of medicine, and engineering. In 2003/2004, of the 315,591 students in all WAEMU countries, approximately 72,840, or 23.08 percent of the total student population were enrolled in private institutions. (African Development Fund, 2006). This percentage shows that the private sector is an important element of current higher education systems in WAEMU countries and efforts shall be made to enhance their contribution to the education system. In the health field, for example, one child in 10 dies before reaching one year, and according to statistics from the World Health Organization (WHO), the average number of physicians per 1000 population does not exceed 1 in sub-Sahara Africa. This number is 0.03 in Chad and Burundi; 0.10 in Zambia, Zimbabwe, Guinea, DR Congo and Angola; 0.20 in Cameroon, and 0.70 in South Africa; while in developed countries, it is around 3 to 4. In Benin, except the two public medical schools and one renowned public nursery school, the country has just one private university that holds

a medical faculty. While many parents have the desire and the modest financial possibilities to send their children to medical schools, those public schools lack the necessary infrastructures to receiving them. More importantly, among the few that gains access to the public schools, many are forced[9] to drop out before graduation. Most of the time, wealthy parents send their children in nearby countries, in some Northern African' countries or in Europe, USA or Canada. The situation is similar in engineering field where, except the handful public technical secondary and tertiary schools, the country has no single private technical or mechanic engineering school; and a handful IT engineering school with almost no well-equipped laboratory where students can foster practical knowledge. Students who have the desire to engage in those fields, end up crowding the number of social sciences students. This reflects on my own educational experiences where, after my high school diploma in social sciences and associate degree in law and political sciences, I have decided to continue my degree in Project Management in a private Polytechnic Institute in order to increase my chances of employment after full completion of my academic studies. Such a transition is very challenging due to the financial burden that comes with it. This is why the involvement of well-organized and state supported private sector in these fields is more than needed, given the crucial need of medical, technical and technological professionals in the countries. In depth and integrative solutions will be explored in the recommendation sections.

[9] Most of the time, the curriculum, the pedagogy and the organization of the school system lack of effectiveness. The teaching quality is very subjective and students lack of motivation and intellectual, physical and moral guidance necessary to succeed in the field.

RECOMMENDATIONS

To date, the responses of higher educational system to the employment challenges in sub-Sahara African countries have been centered on infrastructural and organizational changes. However, increased efforts are needed to introduce entrepreneurship and risk taking courses at early age of the schooling process; to offer sciences and technology related programs that meet the 21st century development imperatives; and to expand career related trainings and university-employers' partnership. This paper presents five lines of recommendations that sub-Sahara African countries should integrate to their Education Development Policies. These lines of recommendations should encompass the introduction of entrepreneurship courses, regional and global market oriented courses, career related trainings, employers-schools' partnership; the student involvement in the learning process and the coordinated actions between national and regional institutions.

Introduction of entrepreneurship courses

A focus shall be placed on entrepreneurship courses that prepare students to set up and run real small, medium or typical agribusiness companies. In addition to their traditional subjects, the secondary and tertiary vocational, technical and professional schools may offer entrepreneurship programs led by businesspersons and a range of professionals from agricultural, legal, sales, public relations and banking backgrounds. These courses may be designed in such a way that enables students for example, to attend theoretical courses in the morning and practical courses in the evening. The offers of entrepreneurship

programs will have a major impact on the household's economy (HE) sector, as various World Bank literatures have supported its high potential and multiplier effect on the creation of wage job. They will also help reduce the high number of young graduates or dropped out students who go into the unformal sector each year, because they lacked the required information or support. In this regard, various incentives such scholarships, awards and grants should be offered at regional and international levels in bilateral or multilateral cooperation with other states or organizations to facilitate the learning experience.

Regional and global market oriented courses

The Chinese and Indian educational systems should inspire sub-Saharan policy makers. In the case of India, this country became independent in 1947, just a decade before most of sub-Saharan countries. However, as of today, the country's economic progress is far ahead on Africans' and its educational system is in steady progress. With the rise of software industry, there is a global demand for skilled ICT workers, and a large number of countries have been planning to import software engineers from India. Countries like Germany are offering 20.000 "green cards" for software workers while others countries like Japan, France, and Republic of Korea are offering no less than 10.000 (World Employment Report, 2001). In the sub-Saharan context, as we have seen in the Indian example, introducing computer sciences at early ages of education and making it compulsory at least until the end of senior high school will help Benin and Senegal to develop a comparative advantage in ICT.

Similarly, as have done the Chinese policy makers, Benin and Senegal should make efforts to encourage the early orientation of first year *upper secondary schools into technical, technological and professional secondary schools.* The same effort should be made for *upper general education graduates into tertiary technical, technological and professional schools.*

Introductory computer sciences studies should be compulsory until certain level, before any specialization. This is feasible, and studies have shown that even for developing countries, it may be possible to have the kind of comparative advantage that would enable them to attract manufacturing and multinational ICT enterprises. In this respect, the PAD-TICE-UEMOA/UNESCO, a WAEMU project launched in 2011, can serve as incubator. This project co-directed by WAEMU, UNESCO and universities aims at setting up physical and virtual ICT infrastructure and ensuring the acquisition of equipment and hardware building capacities in the areas of ICT, in all WAEMU universities. This is where it should also be encouraged the contribution of African wealthiest donors.

Career related trainings

Beyond these general academic and institutional changes, more specific provisions are also required to train and inform students about career opportunities, and enable them to reflect on their personal aptitudes and develop them further, when necessary. Careers advisory services are an obvious focal point in this regard, as well as job fairs and other interactions with employers. Researches at Warwick University in the UK have shown the

importance of one-to-one careers interviews. Other innovations may include specific online platforms that connect graduate students to employers at national, regional or continental level. In this sense, initiative such as **SoukTel** that provides a platform for firms and potential employees to connect via text messages in places where young people are far more likely to have a cell phone (approx. 85%) than internet access (approx. 35%) (Cunningham, Sanchez-Puerta, & Wuermli, 2010).

Businesses-schools' partnership

Here, a close collaboration is needed between local and international businesses and the schools in terms of updating curricula and involving industry representatives in course delivery, as well as providing quality work placements. Nevertheless, a nuanced understanding of graduates needs is required. As of today, industry, technology and the employment market are rapidly changing, and it is hard to see what will be needed in the next decades – both in terms of programs and their contents. Making a direct correspondence between the perceived needs of industry and the university curriculum may not be the best solution. Transferable skills and critical thinking that will allow graduates to adapt and make positive impact on a rapidly changing economy and society seem to us, the most important. Furthermore, this partnership may also integrate the donation of technical and technological equipment, given the fact that many African educational institutions don't always have the resources to acquire these necessary education tools.

Student involvement in the learning process

The concept of "learners' empowerment" takes its whole sense here. The concept implies involving the students in all aspects of the learning process, from the choice of curriculum, the monitoring and evaluation of learning experience, the representation of learners on decision-making bodies, to the development of a critical, transformative approach to learning (Lee, 2000). This approach allows the higher educational decision makers to treat students as **intellectual performers**, **critical lifelong learners** rather than as compliant audience (Lee, 2000). *It helps the higher education system to meet the expectations of students rather than expecting students to fit the expectations the university has for them* (Evans, 1999). Until now, neither Benin, Senegal, nor any sub-Saharan higher education system has integrated or been applying the learners' empowerment concept. Given the validity of such a concept and knowing that people feel a sense of responsibility and social-connectedness when they are involved in the decision-making processes of issues that will impact their lives, we strongly encourage sub-Sahara African policy makers and universities to work toward the integration and full implementation of such a concept.

Role of national and regional institutions:

At national scale, governments should encourage all programs to track and report outcomes including impact evaluations among programs in terms of internal and external efficiency. Reliable data on the profiles required by the private sectors or about sectors

with higher growth potential would help youths to making right employment and skills development decisions. This will also concord with the post-2015 high-level panel report which urges African countries to invest in **data revolution** for the next coming decades.

At regional and continental levels, various transnational initiatives are needed. Efforts should be jointed to adopting regional or continental assessment tests; creating short and vocational training courses; identifying, developing and promoting regional centers of excellence aimed at meeting relevant development needs; introducing merit-based scholarships for sectors identified as priorities by member states and adopting a preferential system for girls.

CHALLENGES AND LIMITATIONS

One of the greatest challenges facing sub-Sahara African education system in general and Benin and Senegal in particular, is the poor availability of robust research and evidence on which to base policy. In many cases, there is a lack of basic statistical information relating to higher education enrolment, quality and outcomes, and even a lack of background data from censuses or household surveys. Employment and labor market indicators are very limited and specific data collection instruments for graduates' employment barely exist. The Lack of information about the profiles required by the private sector or about sectors with higher growth potential doesn't help youths to make right employment and skills development decisions. With respect to graduates' employability, it is important

to nuance that the lack of evidence is in fact a global phenomenon with only a small number of high-income countries like the USA, UK and Australia, having well developed data (Going Global, 2014)

Beyond completion of degree courses, there is a severe lack of information on the knowledge, skills and values that graduates actually possess. To some extent, we rely on our own experiences and observations. Undeniably, there is a strong need for research to gauge the impact on employment outcomes and to assess student perceptions of universities' quality and their own employability needs (Lee, 2000)

CONCLUSION

Africa stands today at a crossroad to development. The stakes are at their highest, and call for the implication of higher education and development actors at all levels. Creating an education system in line with the global job market and the current dominant development paradigms is imperative not only for the African continent, the developing countries as whole, but also for the developed countries. In this global economy where everything is interconnected, a strong STEM and learner empowerment oriented educational system wherever it is, is a fertile ground to foreign investments, academic sciences and technological breakthroughs, and national, regional and international educational and professional networking opportunities in all aspects of progress. It offers an incredible chance of mutual gains to all countries: Developed nations can gain more access to low cost qualified manpower as it is being done in China and India; their efforts and contribution to the developing worlds will be more efficient, because more jobs will be created, and economy stimulated; in the face of global warming and climate change threat, or some health related epidemic, they can back on the technological researches and knowledge of developing countries to bring about innovative and context-sensitive solutions. This position is confirmed by the Cameroonian scientist Wilfried Ndifon, who argues that it is possible to use mathematical approaches in developing vaccine for malaria, yellow fever, dengue and Zika (World Economic Forum & Reuters, March 14, 2016).

With the rise of unemployment in Africa and other parts of the world, the right education system that leads to decent employment or entrepreneurship is one of the tangible answers that can break the chains of poverty and offer sustainable, inclusive, and healthy wellbeing to each and all. Without doubt, universities cannot solve the jobs crisis alone, and coordinated actions across all sectors, including macroeconomic policy and strong political will, are necessary. Failing to do so will hamper progress in humankind, weaken democracy and good governance, and leave a generation without the opportunity of pursuing their ambitions for a better future. It is my sincere conviction that we shall not miss this historical call for mutual gains and progress.

REFERENCES

Atuahene, F., & Owusu-Ansa, A. (2013). A Descriptive Assessment of Higher Education Access, Participation, Equity, and Disparity in Ghana. *Sage open Journal, July-September 2013: 1 –16 l.*

Ball, S. (1990). Big Policies Small World: An introduction to international perspectives in education policy, Comparative Education, 34:2, 119-130.

Benavot, A. (1992). Educational expansion and economic growth in the modern World. 117-134 *in Bruce Fuller and Richard Rubinson (eds.).*

British Council. (2014). Indian school education system: an overview. *British Council, the United Kingdom's international organization for educational opportunities and cultural relations.* Retrieved from https://www.britishcouncil.in/sites/default/files/indian_school_education_system_-_an_overview_1.pdf

Brooks, K. M., Filmer, D. P., Fox, M. L., Goyal, A., Mengistae, T. A., Premand, P., Rin gold, D., Sharma, S., & Zorya, S. (2014) . Overview. Africa development forum. Washington DC. World Bank Group. Retrieved from http://documents.worldbank.org/curated/en/2014/01/18829981/youth-employment-sub-saharan-africa-vol-1-2-overview

Commission for University Education. (2013). Institutional Audit Report 2013.*CUE: Kenya.*

Cunningham. W., Sanchez-Puerta, M., & Wuermli, Alice. (2010). Active

labor market programs for youth: A framework to guide youth employment interventions. *World Bank Employment Policy Primer*. Washington D.C. USA.

Devisse, J. (1985). The development of education and training in Africa: an outline history for 1930-80. *UNESCO*. France

Dabalen, A., Oni, B., & Adekola, A. (2000). Labor Market Prospects for University Graduates in Nigeria. *The Nigeria University System Innovation Project Study*. Retrieved from http://siteresources.worldbank.org/NIGERIAEXTN/Resources/labor_market_univ.pdf

European Commission. (1991). Memorandum on Higher Education in the European Community. Brussels. *Commission of the European Communities, Task Force, Human Resources, Education, Training, Youth.* Retrieved from https://kritischestudentenutrecht.files.wordpress.com/2009/06/ec-memorandum-on-higher-education-1991.pdf

Evans, G.R. (1999). Calling Academia to Account: Rights and responsibilities. Buckingham. *Society for Research into Higher Education (SRHE) and Open University*. Press.

Foko, B., NDEM, A., & Reuge, N. (2007). L'efficacité externe de L'éducation au Sénégal : *Une analyse économique.* UNESCO, Pole de Dakar.

Ghana Statistical Service. (2012). 2010 Population and Housing Census: Summary Report of Final Results. Accra. *Sakoa Press Limited*.

Going Global. (2014). Can Higher education solve Africa's job crisis? Understanding

graduate employability in Sub-Saharan Africa's. *British Council*. UK. Retrieved from https://www.britishcouncil.org/sites/default/files/graduate_employability_in_ssa_final-web.pdf

Grindle, M., & Thomas, J. (1991). Generalizing about developing country policy environments. *In Public choices and policy change: the political economy of reform in developing countries.* Johns Hopkins University. Press. 43 – 69.

Hannum E., Buchmann C., (2003). The consequences of global educational expansion. *American Academy of Arts and Sciences*. Retrieved from https://www.amacad.org/publications/monographs/Ubase.pdf

Harber, C. (2014). Education and International Development: theory, practice and issues. *Symposium books*. Oxford, UK.

Harvey, L. (2000). Tertiary Education and Management. *Kluwer Academic Publishers.* Printed in the Netherlands.

Heyneman, S. (2005). The history and problem in making of education policy at the World Bank. *International perspectives on education and society*. *Elsevier*. vol. 6, 23-58.

Industrial Research and Development Advisory Committee (1990). Skills Shortages in Europe: *IRDAC Opinion*. November. Brussels: EC.

INSAE. (2002). Troisième Recensement General de la Population et de l'Habitat (*RGPHE*). Cotonou. Benin.

International Youth Foundation. (2011). *Youth Map Senegal: the road ahead*. Dakar. Senegal.

Kwapong, A. (1988). *The challenge of education in Africa*. *Discussion of the inaugural program of the Africa leadership forum.* Retrieved from http://www.afri-caleadership.org/rc/the%20challenge%20of%20education%20in%20africa.pdf

Lututala, B. M. (2012). Innovative Secondary Education for Skills Enhancement: Skills for Employability. *Results for Development Institute*. Dakar, Senegal.

McMahon, W., Boediono., (1992). Education and the Economy: The External Efficiency of Education. Florida State University. Press.

McMahon, W. W., Jin, H. J., & Boediono. (1992). Vocational and technical education in development: Theoretical analysis of strategic effects on rates of re-turn. Economics of Education Review. 11(3), 181-194.

Mignanwande, S., & Kinhou, W. (2007). Développer son leadership: Avis d'expert. Impulsion des PME. Cotonou. Benin.

Ministry of Education. (December 24, 1998). Action Scheme for Invigorating Education Towards the 21st Century. Popular Republic of China.

Molungo, G. (2012). The Human Capital Theory in Education: Principles, Critiques and Current thinking. Institute of Education, University London.

Ness, D., & Lin, C.L. (2013). International Education: *An Encyclopedia of Contemporary Issues and Systems*. M.E. Sharpe. Armonk, New York. London, England.

Oketch, M., McCowan, T., & Schendel, R. (2014). The Impact of Tertiary Education on

Development. *A Rigorous Review*. London. Department for International Development. Retrieved from https://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=P0RTfd_qWFo%3D&tabid=3437

Omolo, OJ. (2010). The Dynamics and Trends of Employment in Kenya. *IEA Research Paper Series.* (1) Nairobi. Institute of Economic Affairs.

Omolo, J. (2012). "Youth Employment in Kenya: Analysis of Labor Market and Policy Interventions". *FES Kenya Occasional Paper*. (1).

Pitan, S., & Adedeji. (2012). Skills Mismatch among University Graduates in the Nigerian Labor Market. University of Ibadan. Ibadan. Nigeria.

Pliya, J. (1985). African history in training programs for secondary school teachers. UNESCO. France.

Ranganathan. V, (2003). World Bank and Indian's Economic Development. *Economic and Political Weekly*, 38, 3.

Summary of World Bank Report. (1989). *Comparative Education Review*. 33, (1) 93-104. University of Chicago. Press.

UIS. (2010). Trends in Tertiary Education: sub-Saharan Africa. Montreal. Retrieved from http://www.uis.unesco.org/Library/Documents/fs10-trends-tertiary-education-sub-saharan-africa-2010-en.pdf

UIS. (2011). Financing Education in sub-Saharan Africa. Meeting the Challenges of Expansion, Equity and Quality. Montreal, Canada. Retrieved from

http://unesdoc.unesco.org/images/0019/001921/192186e.pdf

Van der Berg, S., & Van Broekhuizen, H. (2012). Graduate Unemployment in South Africa: a much exaggerated problem. *Stellenbosch Economic Working Papers.* 22, 212.

World Bank. (2010). China and World Bank: 30 years of partnership. Podcast retrieved from http://www.worldbank.org/en/news/video/2010/09/15/china-wb-30yrs

World Bank. (2011). Senegal - Tertiary Education Governance for Results Project. Washington, D.C. World Bank. Retrieved from http://documents.worldbank.org/curated/en/2011/05/14165952/senegal-tertiary-education-governance-financing-results-project

World Bank (2014). Youth employment in Sub-Saharan Africa: Africa Development Forum. Washington, D.C. World Bank

World Employment Report (2011). Life at Work in the Information Economy. *International Labor Office.* Geneva.