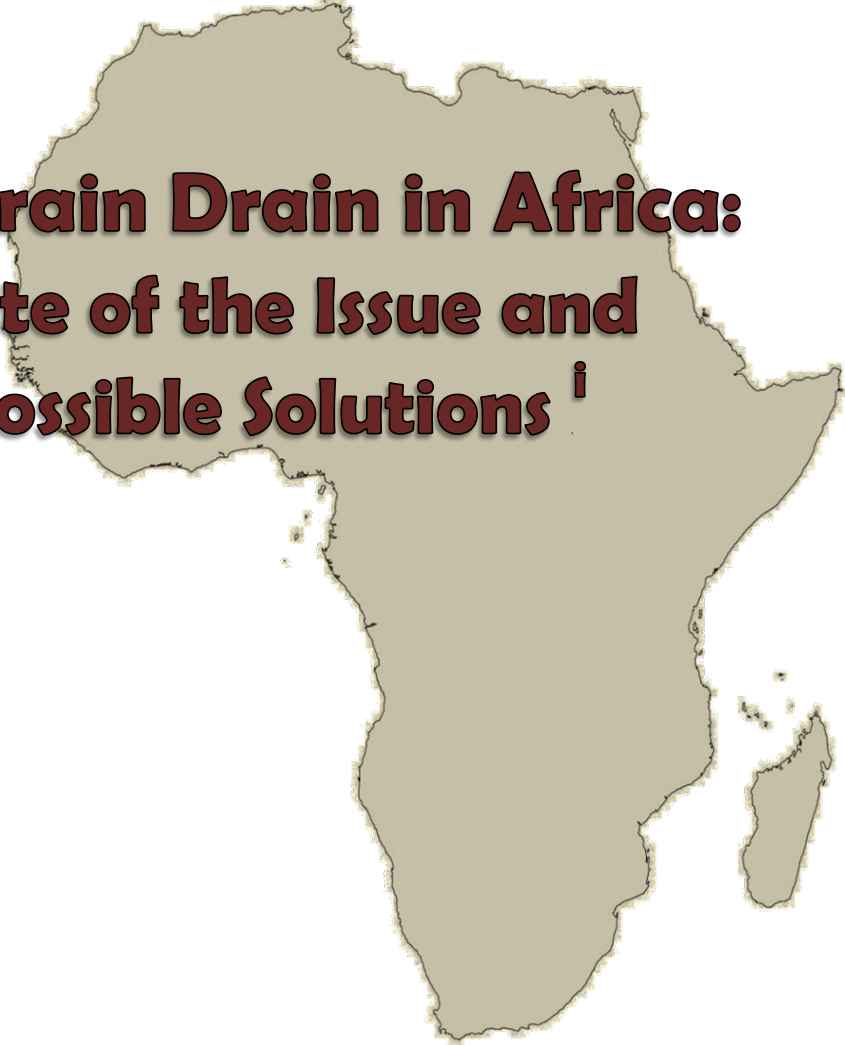




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# **The Brain Drain in Africa: State of the Issue and Possible Solutions<sup>i</sup>**

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## I. INTRODUCTION

Migration is a phenomenon for which Southern voices, particularly those of Africa, and those of the North, are struggling to reach a consensus. The understanding and concern that each has of this phenomenon are different. For African migrants, and their family members who encourage them to do, this migration is justified *grosso modo* by precarious living and working conditions in their home country. It allows them to find better paying jobs, to live and work in better conditions, to be able to meet the basic needs of their family members, in short to enjoy the right to a better life.

However, Northern host countries do not see it that way. They are intensifying immigration control in their countries. For example, since the 1990s, the European Union has implemented concerted policies to strengthen the control of migration flows and to prevent illegal migrants from arriving and staying in a country. The granting of a Schengen visa has been more complex and hundreds of illegal migrants, regularly called returnees, are repatriated in sometimes inhumane ways: in 2006, European Union countries have pushed 5,839 Senegalese migrants (Some 2009:135) and 1,834 Malians (Ballo 2009:120), to name but a few cases.

Policies to facilitate the migration of executives and professionals from underdeveloped countries, especially Africans, have however been developed by the European Union. In other host countries such as the United States of America and Canada, the policies that were already in setup have been strengthened to accomplish the same purpose. The host countries of the North, through this policy of “selective immigration”, clearly show their willingness to poach executives and professionals from Africa in order to involve them in the process of producing goods and services but also to contribute to the renewal of their populations, given their current levels of fertility and aging.

Many studies have been devoted to the brain drain phenomenon (Tapsoba et al. 2000, UNESCO 2004, 2005 Slide, 2006 Lututala, Loitron 2006, etc.) since the 1970s (Mundende, 1977). This work has highlighted the importance of the phenomenon and its consequences for the African continent. Regarding the importance and as an example, studies have shown that the majority (95,000 out of 128,000, or 76%) of African migrants residing in the United States in the 1990s had a graduate degree. They were relatively more educated than the national non-migrants and other migrant groups (Carrington and Detragiache 1999, McCabe 2011). Between 1990 and 2000, Africa gave ten percent of its skilled labor away to developed countries (Marfouk 2007). Some African countries have lost more than fifty percent of doctors they have formed (Clemens and Pettersson 2006) and it is estimated that an average of 20,000 professionals migrate each year to the North (Tapsoba et al 2000: 12, Kouame 2000, Lututala 2006). One may question the reliability of this data, but the fact remains that the phenomenon of brain drain in Africa is not only a reality; it is also a tragedy, an exacerbation of the exploitation of African countries.

The consequences of this phenomenon were also examined. Recent studies show that Africa loses at least two billion U.S. dollars due to brain drain, while host countries reap huge financial benefits by using the trained professionals in Africa: \$384 million for Canada, \$846 million for the United States, and \$2 billion for Britain (Mills et al 2011).

This work also highlighted a divergence of views on the meaning attributed to the phenomenon and on the implementation of possible solutions. The fact that this phenomenon continues to deprive the continent of its most valuable capital for its development shows the limits of the solutions proposed. Hence there is a need to revisit the phenomenon of brain drain in Africa, especially since it will be on the rise for two reasons: 1) the development of knowledge economies in developed countries will force them to recruit skilled migrants given the comparative advantages they provide, and 2) while contributing to knowledge economies, skilled migrants also contribute, like other migrants, to demographic renewal of populations in developed countries.

The purpose this paper is to revisit the “brain drain” phenomenon under the new deal of economic knowledge as well as the setting up of an international knowledge market (Dia 2005). In effect, the question becomes “How can Africa stop this new form of domination and the exploitation of its educated elites?” To try and answer this, the paper examines what is meant by “brain drain” and then shows its size, significance and consequences for Africa. It focuses on solutions that have been proposed and implemented in the past and then proposes a more promising solution: the rehabilitation of university training and research institutions within Africa.

### **What are we talking about?**

Brain drain is not a new concept, much less a new reality. This concept was coined in the late 1950s to describe the significant emigration of British professionals to the U.S. after the Second World War (Raftopoulos, Wittich and Ndlela 1987, Adredo 2000:124). As a result of globalization, this has resulted in a variety of concepts that try to explain this phenomenon: brain drain, brain exodus, the circulation of brains, the loss of brains (brain waste), a leakage of skills (UNESCO 2004), etc. In order to do justice to the migration phenomenon, which is analyzed in this paper, we use the concept of the brain drain.

Indeed, brain drain is first an act of migration, that is to say that people leave their places of origin to settle in other host environments or destinations (migrants), either permanently or temporarily. It then translates into specific characteristics. Migrants are characterized by several variables, including age, gender, marital status, and educational level. Brain drain is characterized by migrants who have reached a certain level of education or professional capacity. In this reflection, what we mean by brain drain is the emigration of skilled Africans to other countries, these migrants are those who have a secondary education or at least who have proven qualifications (e.g. university professors, doctors, teachers, engineers, scientists, musicians, athletes).

There are three distinguishable categories of migrants. The first includes those migrants who have acquired their professional qualifications and their training in their home country at the expense of said countries. In other words, it is these migrants’ country of origin that has invested in their training. In turn, this group uses its professional qualifications to benefit their host, not home, countries. It is indeed a transfer of skills from the South to the North. It is also exploitation since the host countries and their institutions use African nations as labor source countries, despite the continent’s meager resources compared to those held by the host country.

The second category is composed of African migrants who left to pursue and complete their studies in the North, at the expense of the latter, in the context of cooperation, or at their own expense, but did not return to their home countries after their training (Prah 1989). Because the acquired skills better serve the host country than their home countries that would have ensured their basic training at the primary, secondary and even university levels for those who will pursue post-graduate studies, this category of migrants also reflects an exodus of minds in favor of the developed countries that welcomed them.

The third category is people who have not reached the level of education required to qualify as cadres, but have nevertheless acquired professional qualifications in their country of origin that allows them to be courted by employers in host countries. This is the case of athletes, musicians, and other skilled professionals. Their traffic, particularly with regard to football players, is done openly, and does not seem to offend anyone. So we can say that Africa loses all of its skilled footballers when their talents are revealed. The African Cups of nations, for example, have become “showrooms” where scouts of major European football teams rush to identify the best players to buy and, sadly, the original teams are proud to sell them to replenish their own accounts.

Brain drain should not be limited to the South-North migration. In Africa as elsewhere, several professionals “travel” within the continent, working in countries other than those in which they were trained. The most famous universities of these host continents acquire academics from other countries and universities (Prah 1989). International and regional institutions poach academics that are throughout the continent for their services. Musicians, athletes, and other skilled personnel improve their skills in other countries than their own.

## II. THE MAGNITUDE OF THE BRAIN DRAIN PHENOMENON IN AFRICA

Several figures have been presented to account for the extent of brain drain in Africa. Some have even become mythical figures such as the one that claim that Africa has lost an average of 20,000 skilled professionals every year since 1990 (Sethi 2000:40; Kouame 2000:10; Lututala 2006). Leistner (1993:219) suggests in turn that Africa lost 67,000 skilled workers between 1960 and 1984 and that the total number of qualified African professionals working outside the African continent could have been as much as 100,000 in 1993.

One of the difficulties encountered in the study of migration in general, and that of brain drain in particular, is the lack and poor quality of statistics. The best data on migrants should come from official statistics from their countries of origin. But national borders are so porous that no African country can claim to control all points of exit from its territory and, as a result, cannot collect comprehensive and reliable information on those who leave. Even if immigrants leave the country by a single exit door, like the international airport, it is not clear that the gathered statistics are complete and detailed enough to be made available to researchers during their investigations.

Statistics on migrants in destination countries also have three limitations. The first is that it is not obvious that one knows all the countries where migrants were headed and that we

have the relevant statistics. Therefore, the numbers of migrants from a given country can only be estimated based on statistics from countries that are thought to be the most attractive to these emigrants. The second limitation is that many migrants live underground and are therefore not reflected in official statistics, such as those from censuses. But it is the census data that are most available because each country is invited by the United Nations to organize a census of its population every ten years. They are also the most representative data sets because censuses cover all the national territories and their populations. The third limitation is that most studies on brain drain are based on the stock of immigrants or emigrants. This indicator does not give a good measure of the drain of the skilled labor in countries of origin. We must instead resort to emigration rates by levels of study, i.e. the proportion of skilled people who migrate to all qualified persons in the country of origin (Marfouk 2007).

Using this method, Marfouk (2007) estimated the extent of the brain drain. The results of these estimates regarding Africa are listed in Table 1 below. The table shows that between 1990 and 2000 the number of qualified African migrants doubled from 652,000 to 1,388,000. Countries where the phenomenon is most striking are South Africa (168,000), Nigeria (149,000), Egypt (149,000), Morocco (141,000) and Algeria (86,000) (Marfouk 2007). The proportion of skilled emigrants in all African migrants increased during this period from 22 percent to 31 percent, therefore demonstrating the intensification of the phenomenon. This is confirmed by the emigration rates, which are also described in the table below. These rates show that Africa has “assigned” a tenth of its skilled labor to developed countries over the past two decades. This rate is higher than that of all developing countries (7.3%) and especially that of developed countries (3.6%). This is a significant loss for a continent where, as we have said before, human resources are the basis for engaging in the development process.

**Table 1: Emigration growth rates of emigration of skilled people (Africa)**

	<b>1990</b>	<b>2000</b>
Total emigrants (in thousands)	2,911	4,497
Skilled emigrants (in thousands)	652	1,388
% of skilled emigrants	22%	31%
Total labor force (labor) (in thousands)	227,338	298,112
Total skilled labor (in thousands)	5,842	11,896
% skilled labor	3%	4%
Proportion of skilled immigrants to the total active labor force	1.3 %	1.5 %
Proportion of skilled immigrants to the total of skilled labor force:		
• Total in developed countries	3.9 %	3.6 %
• Total in developing countries	7.7 %	7.3 %

*Source: Marfouk (2007)*

African countries where the emigration rate of skilled labor is higher than 35 percent are Cape Verde (67%), Gambia (63%), Mauritius (56%), Seychelles (56%), Sierra Leone (53%), Ghana (47%), Mozambique (45%), Liberia (45%), Kenya (38%) and Uganda (36%). In the first four countries mentioned, more than half of qualified persons are snatched up by developed countries, while in the other countries in this list, it is between one third and one half of the skilled labor force that goes to work abroad.

Other data supports the estimates and analyses presented by Marfouk, thereby confirming the extent of this phenomenon. According to the 2009 census data, there were 1.5 million African immigrants in the United States. On average, they were more skilled than other immigrants and the non-migrant population. Indeed, nearly half (41.7%) of African immigrants possessed a bachelor's degree or higher, while only 28.1 percent of U.S. non-immigrants obtained the same level of education. Moreover, the proportion of African migrants who have a bachelor degree and above was 16.7 percent versus 11 percent for all immigrants in the United States and 10 percent for U.S. non-immigrants (McCabe 2011). The majority of African immigrants from certain countries had a higher qualification than the previously mentioned average: Uganda (66.5%), Egypt (61.1 %), Algeria (61%), Nigeria (60%), Zimbabwe (57.5%), South Africa (55.3%), Cameroon (54.6%) and Tanzania (51.2%). Yet, African immigrants were relatively more likely to live below the poverty line (18.5%) than other immigrants (17.3%) and U.S. non-immigrants (13.6%) (McCabe 2011).

The same census information shows how the number of African immigrants in the United States is increasing. In fact, while Africans accounted for only 0.4% of all immigrants in the United States in 1960, their share rose to 1.8% in 1990, 2.8% in 2000, and 3.9% in 2009. It is important to note that until 2009, 23,903 Africans had immigrated to the United States through the lottery system, which, as we know, is only for immigrant candidates who have professional qualifications sought by the United States. The workforce obtained by this method represents 48 percent of all immigrants who enter the United States.

Statistics on the brain drain of health workers are even more alarming. Indeed, Clemens and Pettersson (2006) have published data, which, according Loitron (2006), came to end the uncertainty that previously characterized the data on this phenomenon. According to their estimates, out of the 345,749 doctors trained in Africa, 64,941, or 19 percent, have left the continent to work in Britain, the United States, France, Canada, Australia, Portugal, Spain, Belgium and South Africa. For Sub-Saharan Africa in particular, out of the 133,058 doctors trained in the region, 36,653 (28%) leave to work abroad. The situation is more dramatic for countries that have lost more than 50 percent of doctors they trained (Table 2).

**Table 2: African countries have lost at least 50 percent of their doctors (up until 2000)**

Country	Percentage	Corresponding Number	Countries that have acquired the most number of these immigrant doctors
Angola	70	2 102	Portugal
Cape Verde	51	211	Portugal
Congo	53	747	France

Equatorial Guinea	63	81	Spain
Gambia	53	46	United States
Ghana	56	1 639	United States
Guinea Bissau	71	251	Portugal
Kenya	51	3 975	Great Britain
Liberia	63	126	United States
Malawi	59	293	Great Britain
Mozambique	75	1 334	Portugal
Sao Tomé & Príncipe	61	97	Portugal
Senegal	51	678	France
Tanzania	52	1 356	Great Britain
Zambia	57	883	Great Britain
Zimbabwe	51	1 602	South Africa

*Source: Clemens and Petterson (2006)*

The table shows that with few exceptions, African doctors who leave their country to go elsewhere usually end up in the former colonial countries

Africa does not only lose its doctors, it also loses its teachers. In many ways, some leave their universities and country to teach elsewhere. For example, between 1991 and 2002, the two largest universities in Senegal, University Cheikh Anta Diop of Dakar lost 72 professors and the University Gaston Berger of Saint-Louis lost 23 professors because they went to teach at universities in the North. These teachers mainly teach at American and French universities and make up 10 percent of the teaching force. They are seen most on faculties of medicine, pharmacy and science and technology in these host countries (Dia 2005:156). Burundian universities have lost 49.9 percent of their faculty and now they depend on external expertise, which costs paradoxically much more than national expertise (Association of African Universities). Nigeria is also very well versed in this phenomenon. Between 1992 and 1995, Nigerian universities have lost 883 teachers (Bankole 2000:218).

Furthermore, teachers are also drawn away from their careers in teaching and research by regional and international institutions and political careers, which pay better. They are found in agencies of the United Nations, regional or international institutions and NGOs, and political institutions in their countries. Some continue to half-heartedly provide lessons or teach some classes just to keep one foot in the university and not lose the prestigious title of University Professor.

Finally, some young university teachers leave to pursue their postgraduate training, usually in universities of the North. Many do not return to their countries and universities of origin. Statistics on the phenomenon of no return shows that African students at universities across the world occupy the second place among all expatriate students, but many do not return to their countries after their training (Lututala 2006). Nearly half (42%) of students sent for training by Addis Ababa University do not return to their country and university. For some



courses, the proportions of no return are up to 83 percent (Adreda 2000:134-135). We will return to this point later on.

### **But why do they leave?**

Africa is endowed with immense natural resources that are still insufficiently developed. About 30 percent of global mineral resources are in Africa. Countries like DR Congo, and Guinea somewhat, have suffered geological scandals, following the quantities and variety of resources found in their ground. Ghana and South Africa are teeming with 40 percent of the world's reserves of gold and DR Congo and Togo possess 60 percent of the world's cobalt reserves. Africa possesses important mineral deposits that are popular right now, such as coltan, which is used in mobile phones. Countries like Nigeria, Angola, Libya, Gabon, and Congo are major oil producers, whereas nations such as Chad and Equatorial Guinea have barely begun to tap the oil, which has remained in their earth.

With regard to forest resources, Africa (still) has large tracts of wooded areas, despite the high deforestation from which it suffers. This is because households must purchase firewood or participate in slash and burn farming, but also because foreign companies come to the continent in search of high value species of wood. Africa's Congo Basin is the second largest forest basin in the world, second only to the Amazon in Latin America. Of the soil, Africa also has large reserves of agricultural land that are beginning to attract more investors (Arezki, Deininger and Selod 2012). This has resulted in talk of a new colonization of Africa through the purchase of farmland by the great powers (Cordeiro 2010).

One can produce multiple examples that show how Africa is endowed with the resources necessary to development and that can offer its intellectuals better living and working conditions. But why, despite this potential, does this migration of skilled professionals continue?

Two theoretical approaches are used in understanding the persistence and even aggravation of the brain drain phenomenon (Adredo 2000). The neoclassical approach, which we call positivist, considers that brain drain is a consequence of the inability of the state and economic structures to provide sufficient employment for its working age population in general, especially those with high professional qualifications. The resulting unemployment that strikes a good proportion of this population leads to an underpayment of those who work and, in conjunction with the law of supply and demand, this brings about the work force's desire to leave in hopes of finding better-paid work (Todaro 1976). Migration in general and brain drain in particular, could be a mechanism that would allow the underemployed or unemployed to maximize their professional skills in areas where labor is sought after and better paid. This mechanism ultimately would allow for a more efficient use of the potential workforce available in the country. In sum, the impetus provided by migration causes an increase in the demand for labor, thereby reducing the disparities between supply and demand and causing the average salary to increase.

Globally, international migrations appear as a mechanism of "deterritorialization" of the labor market, of interconnection of markets between countries of origin and host that creates an international market that follows the requirements for globalization (Dia 2005).

Thus, skilled workers, like all migrants, may either practice in their countries or in a host country in which they are in search of workers, particularly the most skilled workers. The latter would certainly enable a “brain gain” for the host country, but also could benefit their country of origin through the transfer of funds and property that they earned while abroad. The migrants who returned contribute to the development of their home countries as well thanks to the skills they have learned during their stay in the host countries. Migrants could even be a “pool” from which one can draw the human resources needed to improve the quality of training and research in universities in the countries of origin.

This approach raises several questions. Can we assume that migrants are actually better paid in the host countries when we know that many of them carry rather precarious jobs, or are employed through informal means and are subject to unexpected dismissals (Lututala 2006)? Moreover, do the transfers that migrants send home compensate for the shortfall that their departure inflicted on their country of origin that sacrificed enormously to ensure their training? While the amounts of remittances even exceed the official development assistance in countries such as Senegal (Fall n.d.), Nigeria, Mali, and Burkina Faso, the fact remains that remittances’ impact on development is far from homogeneous as seen through the research centered on this issue (Mangalu 2001). We will see in the next section that these issues are also considered when examining the implications of the brain drain. Meanwhile, the phenomenon contributes to rising inequality between countries of origin and host, as if to validate the advocates of the alternative center-periphery approach.

The center-periphery approach estimates that the global economy is broadly structured into two main poles: one of dominant economies (developed countries), and one of dominated economies (underdeveloped countries). This polarization also causes segmentation: dominant economies produce most of the goods and services consumed in the world and dominated economies specialize in the supply of the raw materials needed for production of these goods. However, the “exchanges” between the two major economic areas do not necessarily follow the laws of the market, partly because it is the buyers or developed countries that dictate the purchase price of raw materials, even if, as is the case of OPEC, the producers are working together to counteract this. Consequently, underdeveloped countries still have fragile economies, which are unable to provide an adequate and stable income to address pressing systemic problems like poverty, corruption, and bad governance.

These ills are all elements of an environment that promotes the migration from poor to rich countries. Indeed, it is actually out of poverty and through the pursuit of higher paying jobs that people leave, often despite themselves and their country, to go where they hope to find these jobs. They leave because the political and economic context in their countries does not promote conditions that generate gainful employment for their populations. When migrants are asked in general, skilled migrants in particular, about the reasons for their migration and the preconditions for an eventual return, the responses demonstrate how they would like to have better working conditions, to benefit from a competitive wage and to make a decent living, to live in a political and social environment that allows freedom of expression and thought and that would guarantee all citizens peace, security, and the exercise of democratic rights, fight corruption, favoritism and nepotism in all their forms (Prah 1989:65).

In terms of brain drain in particular, one must distinguished between cadres in training and those who have already completed their education (UNESCO 2004). Training managers are those who leave to go to Northern universities or to other countries with better infrastructure so they can continue their academic training. Indeed, many African universities do not provide quality training. The lack of substantial funding from states does not allow for well-developed libraries or laboratories, well-equipped and modern facilities, adequate student residences, well-motivated and always available teachers, a wide variety and demand-driven educational programs that short of even minimum conditions are necessary for a good education, intellectual development and highly valued degrees. Postgraduate studies, in particular, that demand top-level research infrastructure, often require that candidates leave their country for the wealthiest universities abroad.

Statistics show that many students who go to train abroad do not return after their studies. Some of the cited reasons include: the challenges of reintegration into their home country and the universities there, the difficulties of their children born abroad during their training to assimilate, and the lack of research infrastructure that will enable them to thrive scientifically. Homecoming presupposes a drastic reduction in purchasing power and harsher living conditions. It is not only the economic conditions abroad that serve as an incentive to stay abroad but it is also such factors as social peace, the absence of social unrest, war, police harassment, and reliable banking facilities. One can add to that the expectations of extended family members vis-à-vis those who have spent years in the North to continue their high levels of achievement. Many of those who do not return are not able to face these conditions.

For trained professionals (e.g. university professors, doctors, engineers, nurses), the final push to leave comes from an existential crisis and frustration. These academics compare their salaries not just to those paid by universities in other countries, but also to other professional groups, such as members of government or other political and state institutions. The differences are enormous and difficult to justify, as is the case of the DR Congo where a parliamentarian, whatever their level of study, has a salary of around \$4,000 USD while that of a PhD university professor, does not exceed \$1 200 USD, including the premium that is paid from the “parental contribution” fund. This frustrates teachers, who see their former students become ministers or parliamentarians and earn wages three times higher than theirs.

This cadre of professionals also leaves because, once again, the poor working conditions that do not allow them to flourish scientifically, to contribute more effectively to the production of knowledge, or to apply the knowledge they have accumulated throughout the completion of their doctoral research. With old laboratory equipment, poor libraries and rather old collections of documentary resources, the lack of scientific debate (e.g. seminars, conference sand research teams), and the low level of training and general education for students, professors in many African universities are reduced to simply reciting notes in packed lecture halls. They believe they are wasting their time, especially since the results of their research, when they are able to do research, do not generally interest policy makers and are therefore not valued.

The political situation in many African countries also pushes many academics to leave. For example, between 1990 and 2005, 23 African countries (nearly half of the continent) experienced socio-political conflicts and wars. Recently, the 2011 crisis in the Ivory Coast led to the destruction and looting of research infrastructure at universities (professors' offices, libraries, auditoriums, etc.), to the point where these schools could not operate during the academic given that they had to be rebuilt, forcing professors into unemployment. In Senegal, since the beginning of October 2011, teaching was suspended during the electoral period due to the poisonous atmosphere that prevailed in the country, as well as a teachers' strike demanding better life and work conditions. In the DR Congo, public universities suspend their courses almost every year; faculty uses this strategy to demand for an improvement in their living and working standards.

### A “global market of gray matter”

Dia (2005) has established a very interesting analogy between the world market for raw materials and that of gray matter. In effect, globalization imposes a harsh competition between companies in order to offer better quality products and thus enforces the need for a workforce that will deliver comparative advantages. Moreover, in knowledge-based economies, companies must use a highly skilled workforce. Electronic industries, for example, look for professionals who have mastered advanced technologies. Developed countries cannot fully satisfy this need for qualified staff due to their aging populations; therefore, they resort to promoting policies that favor the immigration of educated professionals. To do this, conditions that favor the exodus of anyone with professional qualifications are set up, especially since these individuals are always highly sought after on the job market. Consequently, these persons sell their labor power for a “price” compatible with their qualifications and when their labor is not paid well enough, they are likely to migrate to where they believe their credentials will be better appreciated. One can cite the example of several African footballers in European clubs where they are much better paid than when they practiced amateur football in their country of origin.

African brain drain is a phenomenon that is wanted both by potential migrants and wanted and maintained by the North, as shown by the migration policies that are implemented. We discuss two examples to illustrate it, the European Union and Canada. *The European Pact on Immigration and Asylum*, adopted in 2008, clearly states the importance to “organize legal immigration based on priorities, needs and capacities determined by each Member State and promote integration.” The Pact states that this commitment must be translated by the admission of a number of professional immigrants in line with the needs of labor markets. This will be accomplished by enhancing the attractiveness of the European Union for highly skilled workers in conjunction with selective immigration. To say the least, the implementation of this Pact led to absurd situations. For example, the musicians that perform in larger venues receive their visas easily (because they generate taxable income) whereas University professors who are invited to participate in scientific conferences have more difficulty in obtaining this documentation because the financial profitability is not as obvious and direct. The latter are ultimately placed in the category of undesirable immigrants, and the Pact requires them to engage in a constant struggle through strict visa controls and infiltration at the borders. These situations are experienced in almost all African countries.

Long before the European Union, Canada, New Zealand, the United States had already opted for this selective immigration (Lochhead and Mackenzie 2005). Quebec, for example, has implemented a “seductive policy” of encouraging immigration to Quebec through 1) a system of teaching and research that attracts foreign students, 2) the recognition of diplomas abroad to facilitate the integration of immigrants, and 3) an employment policy which takes into account family constraints, and 4) faster processing of visa applications (Lochhead and Mackenzie 2005). A selection grid has been in effect since 1968 to attract skilled immigrants. The motivation for this policy is twofold: 1) to address the aging problem of the population of Quebec and then to equip the Canadian province with skilled labor needed to produce goods and services and 2) to promote the promotion of the French language.

In fact, this selection grid is applied in all of Canada for the same reasons, but different weight is placed on the linguistic requirement. The table below shows the importance attached to the immigration of skilled labor in the Canadian immigration policy (Table 3). We observe that between 1972 and 1994, there were few changes made to the criteria (i.e. the education level and professional qualifications which are the most important requirements for admitting immigrants). Note also the emphasis on age, as it appears that immigrants admitted to Canada should be of working age; therefore, excluded all those persons approaching the age of retirement or inactivity (usually 65). In 2002, we find that professional qualifications account for 50 percent of the points needed to gain admission into Canada as an immigrant. If we consider the minimum points needed to gain entry, this percentage increases to 70 percent of the points. This shows sufficiently the importance attached to professional qualification. This is explicitly stated in the new Canadian immigration policy rhetoric that offers first and foremost “to open the door wide to skilled workers” (Parant 2001).

**Table 3: Assessment system for the selection of immigrants**

Criteria	Points		
	1972	1994	2002
Studies	12	16	16
Professional training	15	16	19
Professional experience	8	8	30
	15	10	-
Designated profession	10	10	-
Place of business	5	-	-
Age	10 (18-35 years)	10 (21-44 years)	10 (21-45 years)
Knowledge of English + French	10 (both) 5 (one)	15 (both) 9 (one)	15 (both) 12 (one)
Adaptability	10	10	10
Parent in Canada	5	5	-
Maximum [points total]	100	100	100
Points to gain entry [minimum needed]	50	70	70

*Source: Parant (2001)*

With regard to the United States of America, we have witnessed for some time the implementation of a voluntary policy that promotes immigration of skilled labor through the well-known lotto system.

### **III. WHAT ARE THE CONSEQUENCES FOR AFRICA?**

**The consequences of brain drain have been discussed by many researchers and organizations.** UNESCO (2004) made a more detailed analysis of these consequences by distinguishing four types: human resources losses, financial losses, economic losses and political losses.

The development of a country depends on three factors: natural resources, human resources and financial resources (UNESCO 2004). Economists use the trilogy of nature, labor, and capital to refer to these inputs. Africa, currently facing the problem of development, is therefore highly dependent on all of these elements, but it is the human resource factor that is most important because it allows for the continent to showcase its natural resources, and therefore generate the capital needed to support its development. In the words of Federico Mayor, former Director General of UNESCO, “the gap between North and South is a gap of knowledge” (UNESCO Federico Mayor in 2004, see also Tapsoba 2000).

The first consequence of brain drain is that it deprives Africa of its most important resource for development, thereby undermining the latter. Development essentially is a process, and a subsequent outcome, of improved living conditions. This process begins by questioning one’s existence and his or her living conditions. Then, one must identify solutions to improve these conditions and finally bring together the resources, financial or otherwise, necessary to implement the proposed solutions. There must be “talking heads” to conduct such an intellectual exercise (Tapsoba 2000). If Africa is losing 1/10th of its [most] qualified human resources, it is understandable that it cannot find original solutions to multiple problems such as its populations’ lack of access to food or clean water.

Moreover, it is worth noting that it is in Africa that the need for skilled professionals is greatest. 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-Saharan Africa. For example, it is 0.03 in Chad, Burundi, 0.10 in Zambia, Zimbabwe, Guinea, DR Congo, Angola, from 0.20 in Cameroon, and 0.70 in South Africa. In developed countries, it is around 3 to 4.

Regarding education, the number of students per teacher in higher education exceeds 50 percent. This figure underscores the deficit of teachers suffered by African universities.

The marginalization of Africa in the production of knowledge is another consequence of the African brain drain. This creates a shortage that is difficult to fill and, as a result, many teachers are under qualified. The resulting deterioration of the quality of training provided to students is generally recognized and deplored. Many students today have difficulty arguing, speaking and writing in the official working language (i.e. English, French, and



Portuguese), having a general culture, and analyzing problems and finding their solutions. Employees complain about the low employability of graduates that universities put on the job market. It is not surprising in such a context that most African universities remain unranked on the worldwide list of universities. They are, according to Congolese researcher Kä Mana, anti-universities because they are characterized by all that is contrary to academic excellence (e.g. currency ratings, tribal fighting, and neglect of lessons) (Cf. Mulumba Kabwayi 2011).

The impact of brain drain on research is even more critical. Indeed, data items (articles, notes, journals) published in 3046 journals with peer review and research listed in the Ulrich, Gingras and Mosbah-Natanson database (2010:150) show that in 2004, Africa contributed only about 1.8 percent of world production of social scientific knowledge, versus 43.8 percent for Europe, 37 percent for North America, 8.6 percent for Asia, 4.7 percent for Latin America, and 4.2 percent for Oceania. Obviously, brain drain is not the only explanation for this low performance, but is one of a myriad of factors that contributes to this deficit. For example, the lack of research budgets led to the lull in research and the exodus of researchers who would like to use their work to enhance and contribute to the development of their countries.

Brain drain also causes significant financial losses. These losses are usually estimated by considering the cost of training in the countries of origin. One of the most recent works in this area is that of Mills et al (2011) who estimated that African countries where the prevalence rate of HIV / AIDS is greater than or equal to 5 percent (Zimbabwe, Kenya, Ethiopia, Malawi, Nigeria, South Africa, Tanzania, Uganda, Zambia) would suffer around \$2 billion in financial losses as a result of the exodus of physicians to Australia, Canada, Great Britain and the United States. It should be noted that the study covers only English-speaking countries of origin and destination of African migrants, which precludes generalizing the results to all African countries. It nevertheless reveals a lot about the importance of those losses. The study also shows that following the exodus of doctors from Africa, beneficiary countries save significantly because they do not have to train these specialists: \$621 million for Australia, \$384 million for Canada, \$2.7 billion for Britain and \$846 million for the United States (Mills et al 2011).

This way of estimating the financial losses incurred by a skilled migrant's home country does not seem satisfactory. In fact, the profitability of training is seen more or less for the thirty years of working life, through which services are rendered or taxes are paid to the State. It is not sufficient to only estimate the costs of training. But how does one quantify, for example, how a trained teacher teaches, for 30 years, hundreds of students each year? Or how a health care professional or a doctor treats dozens of patients every day? Similarly, by solely estimating management-training costs spared by the host country, we do not take into account the contribution of these professionals make to the economies of their new resident countries. We should consider financial contributions with regards to rent, food, clothing, entertainment, taxes, etc. Such studies seeking to assess the costs and benefits of international migrants were undertaken in the 1980s, but since then, they have not been continued.

Brain drain also causes economic losses. This is seen in the fact that African countries suffer from a lack of qualified professionals due to the prevalence of rentier economies. A rentier economy is one that is characterized by the extraction and export of natural resources (e.g. mining and oil), subsistence agriculture, and underdeveloped industry. As a result, African economies' input to world production is very low: Africa contributes only 1 percent of global GDP, 2 percent of world trade and 2 to 3 percent of international direct investment (Hugon 2009). While the lack of national political will is the primary explanation for Africa's economic underdevelopment, the lack of a critical mass of qualified managers within African infrastructure is equally as influential. For example, these professionals could transform the subsistence agriculture economy into an agro-industry or process locally extracted raw materials into finished products that could be exported abroad.

Finally, brain drain deprives Africa of professionals who are able to effectively govern state institutions. UNESCO (*op.cit*) asserts that migrants who leave are part of the intellectual elite who is frustrated with how current political leaders govern their countries and are also unnerved by this leadership's refusal to compromise or form alliances with them. Therefore, these intellectuals exercise their power to challenge their governments and, as a result, have to leave their homes because their lives are at stake after having voiced their dissent. Unfortunately, this forces them to leave the governance of their country in the hands of the people they criticized. In some cases, it is the leaders themselves that force into exile those professionals who can challenge their power, so that they can govern and plunder the resources of the country unchecked. They also force these intellectuals into self-exile since this group is a solution to economic problems such as unemployment, and regulation of political mandates.

### What can be done?

Stopping brain drain in Africa is an impossible task. Everyone seems to agree on this point. In this case, it seems that these skilled professionals are both "victims" and actors. For the reasons we have discussed above, they are torn between the desire to stay in their country and contribute to its development and the need or the obligation to go into exile. Some skilled migrants who were interviewed felt assured that they contribute to their country's development by being abroad (Dia 2005; Prah 1989). We must therefore seek appropriate solutions that can address the interests of all of these different actors.

Kouame (2000) recommended two broad categories of solutions to address the brain drain in Africa by promoting the return of migrants or involving them in their country's development even while they are abroad. The first solution is to push migrants to return to their home country through five complementary mechanisms. The first mechanism is to attempt a reversal of trends or a reverse brain drain (RBD). This is accomplished by recruiting skilled migrants and assigning them positions in their home country. This solution was applied in some Asian countries, including Korea, and throughout Eastern Europe (Kouame, *op.cit*). In the 1990s, the World Bank had also attempted this, albeit to a lesser extent and for other reasons, when the organization encouraged some of its own professionals to return to their countries of origin to serve as Prime Minister (i.e. Andre Milongo in Congo, Nicephore Soglo in Benin, and Alassane Ouattara in Côte d'Ivoire). In DR Congo, Laurent-Désiré Kabila had recruited some professionals within the Congolese



diaspora from the AFDL (Alliance of Democratic Forces for the Liberation of Congo), the political group that overthrew President Mobutu. However, this mechanism is very selective and does not encourage the return of a critical mass of skilled migrants.

The second mechanism to encourage skilled professionals return to their home countries is to provide financial facilities to migrants in preparation for their return to work. For instance, Senegal, in its policies on migration management, has established credit facilities and policies centered on vocational integration to promote the return of “Senegalese abroad,” in particular those who are undocumented (Diene 2011). The limitations of this mechanism were shown by Fall (n.d.): migrants generally do not wish to return permanently and prefer to live in a residential ubiquity between their countries of origin and the host countries where they currently live (Lututala 2006). Moreover, the political and socio-economic situations in several of African countries negate the will of migrants from these countries to return permanently. At best, many return home to make short trips for vacation, business, or for family reasons. Having become accustomed to certain standards in their host countries that many countries of origin have yet to uphold, migrants have difficulty reintegrating into their home countries’ systems and encounter multiple obstacles as they attempt to do so in both the formal and informal sectors.

The second category of solutions, which seems the most experimental, is to involve migrants in the development of their home countries from countries while they are still abroad. This is accomplished through three main mechanisms. The first is, again, a series of “co-development initiatives.” The French Agency for Development (AFD), for example, provides financial facilities for migrants, particularly those of Morocco, Mali, Senegal, who want to create small and medium enterprises (SMEs) (AFD 2010). These programs give migrants training in the creation and management of companies and other types of enterprises. In Senegal, these “co-development initiatives” also give support to promote “the physical or virtual mobility of the Senegalese expert” so he can bring his expertise to local organizations that request his assistance as well as provide him the logistical means to make his intervention possible (Diene 2011).

These initiatives also promote the transfer of funds and goods by migrants under the assumption that they will compensate for the various losses suffered by their home countries from the exodus of skilled labor and then contribute to the development of these countries. Several previous studies conducted verify the relevance of this solution. These studies show that the amount of remittances sent by migrants is indeed important and that they are as important, if not more so, than the development assistance these countries receive from developed countries (Fall n.d.: 12). We also know that there is a direct link between the act of transferring funds and the educational attainment of immigrants: the more an immigrant is educated, the more he or she will transfer funds back home (Mangalu 2011). However, some studies do show that more educated immigrants do not transfer or transfer funds less often than those who are relatively less educated. The explanation given is that their high education or qualifications promote the integration of these immigrants who have resided longer in their new country of residence (Mangalu speaks of more than ten years). Therefore, this group tends to be less attached to its country of origin, especially when their home affords little economic prospects (Mangalu 2011). As a result, these intellectuals question the usefulness of transferring funds. In fact, migrants make transfers

for three reasons: 1) altruism, or the desire to contribute to the survival of their family members who stayed behind (Lucas and Stark 1985 Mangalu in 2011), 2) recognition vis-à-vis the family of the migrant's financial contribution that made the migration possible (Naiditch 2009 in Mangalu 2011), and 3) a variety of other personal reasons of including preparing for return, compensating family members that handle goods sent or left by immigrants, etc. (Gubert 2007 in Mangalu 2011). These three reasons lose their relevance when the migrant is settled permanently in their host country.

The second mechanism is to encourage the transfer of skills and expertise that migrants acquire during their stay abroad. Programs such as MIDA (Migration for Development in Africa) of the International Organization for Migration (IOM) and TOKTEN (Transfer of Knowledge Through Expatriate Nationals) Program of the United Nations Development Program (UNDP) have been established in order to accomplish this goal. These programs aim to involve skilled migrants in the capacity building of institutions that request it and have been utilized most at the university level as migrants are supported to return temporarily to their country of origin to teach courses (and sometimes conduct research) in one university or another.

We have also seen the limitations of these programs (Lututala 2006). Migrants serving as academic missionaries who return to universities to contribute to training and research say they encounter precarious working conditions upon their return. This includes the lack of chemical inputs, obsolete laboratory equipment, overcrowded, non-air conditioned lecture halls that lack proper sound equipment, and very limited internet access.

The third mechanism is to create centers of excellence with the necessary infrastructure (Kaboret 2000) that can effectively prepare for "the reception of African scientists from the diaspora who can contribute within a framework that offers good working conditions and the expansion of training capabilities in Africa for its top professionals"(UNESCO 2004). But how many skilled migrants may be attracted to these centers? What is their capacity to absorb new professionals? Also, is it good policy to concentrate investments in one or a few centers, letting them decide the fate of almost all other universities and research?

The fourth mechanism is the development of trade between associations of migrants and their countries of origin via internet. These associations are considered as the transmission belts of the needs expressed by the country of origin's institutions. This initiative is contingent on migrants making themselves available to these institutions. The virtual implication of this interaction, however, requires that access to the internet and other ICT is well developed in the countries of origin, which is not yet the case (Lututala 2006).

### **The need to rehabilitate African universities**

We have seen that some solutions that have been implemented to counteract the effects of the brain drain are not always relevant, while others have rather limited effects and have questionable goals. However, one solution doesn't seem to have caught the attention of policy makers and researchers: the rehabilitation of higher education and university institutions. Kaboret (2000:187) already proposed that "institutions of higher education are a key device in the strategic plan to fight against brain drain and these minds should be used

where they are.” He felt that these institutions were intended to prevent brain drain. We subscribe to this view, not so that these institutions prevent brain drain, which is illusory, but can be used to reduce the negative impact of this phenomenon.

While brain drain has a considerable negative impact in the countries of origin, it is because skilled migrants who leave are rare “pearls” whose departure creates a void and causes a complete lack of skilled professionals in some areas. This happens because of the elitist nature found in and the crisis facing African academic institutions. Indeed, the living and working conditions in these universities are such that the scholars can only receive the amount of knowledge needed to successfully compete in the labor market. African students in our universities can be classified into two categories: a minority who study hard and excel despite the living conditions and a vast majority who cannot overcome these obstacles. Thus, the risks of these excellent students graduating and then being trapped in developed countries are high and, more often than not, these qualified graduates leave national institutions, including universities, to the majority of graduates whose poor job performance is often deplored. We must therefore realize that all African university graduates have, as is the case of those universities in the North, the capacity to be employed and to contribute to the labor market. Thus, even if some qualified professionals are stuck in their new host countries, institutions will not unduly suffer from this exodus, which, remember, cannot be totally prevented.

To achieve this, we need training institutions and university research to be rehabilitated. These programs will become more attractive if they are equipped with adequate research infrastructure, have a good reputation, and begin to develop, internally, a sustainable research culture. Rehabilitation must also involve the establishment of strong training programs, the cooption of the country of origin’s needs (Miralao 2010), the enhancement of research results, and the improvement of working and living conditions for teachers. This cannot be through occasional interventions by governments as they attempt to quell strikes and other protest movements, but can be accomplished through careful planning on how to foster teaching and research in Africa.

## IV. CONCLUSIONS

**Brain drain is a dimension of international migration that cannot be ignored** because of its magnitude and its consequences in the countries of origin of all migrants; however, the effects are seen more intensely in Africa. It denies, in short, the continent of the human, financial, economic and political capital needed to advance its development and the contributions of migrants to the development of their countries of origin do not seem to offset the initial consequences of brain drain. Migration inhibits African development, but brain drain does so even more. This finding is even more salient when one realizes that brain drain in Africa will continue because some, the neo-classics tolerate, encourage, and cause this trend to continue, while others, the dialectics, disapprove but resign themselves and their continent to underdevelopment. In both cases, there is a kind of helplessness in light of economic factors and political context that determines this phenomenon. The aging population in developed countries will also contribute to the exacerbation of the

phenomenon because it will require the recruitment in underdeveloped countries, particularly Africa, of the labor required to ensure production of goods and services.

Even if it is impossible in the current context to prevent brain drain in Africa, we still must find solutions to minimize its negative impact on the continent's development. We have reviewed the alternatives being considered and have shown their limitations. Of all these solutions, the rehabilitation of the educational and academic research institutions seems to be the one that would foster the most broad-spectrum positive outcomes. This rehabilitation avoids the idea that Africa "is out of gasoline" because of this exodus of qualified professionals. Funds allocated to various programs that aim to involve migrants in their country of origin's development process while they are still abroad may, in part, be affected.

## The Council for the Development of Social Sciences Research in Africa

CODESRIA was established in 1973 as a joint initiative of social science institutes. It was prompted by a commitment to pan-Africanism, intellectual freedom, scholarly autonomy, professionalism, and academic integrity. CODESRIA's principal objectives, as spelt out in its Charter, include the facilitation of multidisciplinary research, the promotion of research-based publishing, the building of capacity amongst African researchers at all levels through a strong training programme, the promotion of the principle of academic freedom, and the creation of multiple fora for the exchange of views and information amongst African researchers. CODESRIA challenges the fragmentation of research and knowledge through the creation of thematic research networks that cut across regional, disciplinary and linguistic barriers. It encourages the African social research community to strive for the achievement of a more holistic understanding of the historical and contemporaneous experiences of the continent through multidisciplinary interventions that draw on a variety of traditions and approaches, integrate gender perspectives, and tap into the insights of different generations of scholars. In this sense, the Council can also be seen as playing a critical role in promoting a dialogue among the disciplines, the four generations of African social researchers, and male and female scholars. Furthermore, the Council is mandated to support the strengthening of the institutional basis of knowledge production by developing programmes of collaboration with other centres of social research in Africa whether they are national or (sub-) regional, university-based or independent. In encouraging collaborative work among African scholars through the various research networks which it promotes, and through the training and publishing activities it undertakes, the Council is required and strives to be open to all the contending theoretical perspectives and methodological approaches represented in the African academy. Conscious efforts are also made to tackle the obstacles that stand in the way of an increased participation by women and younger scholars in the activities of the Council, these efforts being reflective of the determination of the Council to achieve a greater gender balance in its work and a genuine inter-generational dialogue in the African academy. As the pioneer and leading pan-African social research organisation, the Council bears the historical responsibility of not only giving voice and visibility to the intellectual production of African scholars but also serving as a voice for African scholars in the international arena. Grants and fellowships facilitate the pursuit of intellectual excellence at the Masters, doctoral and post-doctoral levels. Research results are disseminated through a range of publications including books, journals, monographs and working papers. The CODESRIA web-site ([www.codesria.org](http://www.codesria.org)) offers regularly-updated information on past, present and future activities of the Council. The web-site is also increasingly becoming a forum for the publication of various research articles. CODESRIA collaborates with and supports other regional and sub-regional research institutions. True to the wishes and aspirations of its founding members, the Council's activities remain organically tied to the needs and concerns of the universities and centres of advanced research. Similarly, the vast majority of participants in the programmes initiated and/or supported by the Council are drawn from African universities and research centres. CODESRIA's funding comes from donations made by African governments which are so inclined; contributions requested from bilateral aid agencies and private foundations, the fees collected annually from members, and revenues from the sale of the publications produced by the Council." (CODESRIA and Its Activities – Extending the Frontiers of Social Research and Knowledge Production in Africa, Dakar, 2002, pp 7-8).

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