

## Review

# Reflections on Cameroonian scientists in diaspora

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**Cameroonian scientists living abroad send substantial financial contributions back to the home country, primarily for domestic usage. Although they enjoy better working conditions and are internationally acclaimed, strong nostalgic and professional feelings drive them to seek ways of improving science and technology through research and development in their home country. Principal stakeholders are called upon to consider the effective involvement of the Cameroonian scientific Diaspora in its nation building and apply the suggestions raised in this paper as positive steps for the betterment of the country. Cameroon as a nation is particularly encouraged to work towards making changes in its internal conditions such that its scientific Diaspora maintains a feeling of national belonging, with the possibility of eventually returning back to the country.**

**Key words:** Laboratory, less developed countries, research and development, science and technology, scientific collaboration.

## INTRODUCTION

The 2006 population estimate for Cameroon was approximately 18 million with a growth rate of 2% and a birth rate of 40 per thousand (Human Development Report, 2006). Its human development index (HDI) for 2006 was 0.506, and it was ranked 144th out of 177 countries, putting it close to the bottom of medium human development countries (Human Development Report, 2006). With life expectancy at birth at 51.2 years, Cameroon ranks 159th. Taking into consideration its high literacy rate of 80% in 2003 and its endowment with mineral resources and associated industrial activities such as petroleum production and refining, bauxite mining and aluminum production, iron ore, industrial minerals, salts and hydropower, it is expected to be among the leading economic/industrial countries in Africa. Moreover, its soil fertility has made commercial agriculture one of the nation's economic mainstays, with products such as palm oil, coffee, cocoa, rubber, banana, tea, pepper, fruits and vegetables (*eru*) being regularly exported. Unfortunately though the country thrives in its mineral and agricultural industries and enjoys relative political stability, corresponding adequate and appropriate essential services are lacking, leading to high cost of living. These circumstances force its vibrant work

force to go abroad. The emigrants include a substantial part of Cameroon's best scientists. Yet science is indispensable for nation building.

A nation's state of scientific development can be assessed by its number of scientists, especially those with post graduate qualifications, and their contributions to the body of scientific knowledge in terms of research and publications in globally recognized outlets. Other determinant factors which reflect a country's scientific standing are national positive economic indicators embracing patents, research, invention, health and well being, wealth and the availability of very affordable basic essential services. Implementation efforts towards the materialization of improved positive economic indicators were the primary concern of the United Nations Organization (UNO) for some time, and through the United Nations Secretary General's Office, Task Force 10 on Science, Technology and Innovation (STI) was put in place to effectively facilitate the promotion of science, technology, research and development towards the realization of the Millennium Development Goals (MDGs). The MDGs include drastic poverty and hunger reduction, universal primary education and gender equity, reducing under-five mortality and maternal mortality, reversing the

spread of HIV/AIDS, halving the proportion of people with unsafe drinking water, as well as ensuring environmental sustainability (Millennium Project, 2004). On the economic and industrial front, efforts have to be geared towards creating partnerships for development aid, trade and debt relief.

Differences in the educational levels of countries play a major role in determining the wealth status of a nation, and improved schooling conditions raises incomes, particularly in less developed countries (LDCs) (Carrington and Detragiache, 1999). There is an indisputably direct link between Science and Technology (S&T) and the economic growth of a country; with the more scientifically advanced being the more economically and industrially advanced countries. The Task Force 10 on Science, Technology and Innovation, Commissioned by the UN Secretary General has grouped Nations into four scientific classes: scientifically advanced, scientifically proficient, scientifically developing, and scientifically lagging (Millennium Project, 2004). Cameroon is in the class of scientifically developing.

It is highly desirable for a country to attain improved worldwide scientific recognition. Developing countries wishing to improve the living standards of its citizens must take into consideration the full integration of its scientists, including those in diaspora, into its national priorities. If the MDGs are to be realized in Cameroon, S&T for Research and Development (R&D) must be given absolute priority by all stakeholders. Human capital, equipment and instrumentation facilities required for the realization of the MDGs must be brought into play. Unfortunately, there has been a steadily increasing migration of Cameroonian scientists to other parts of the world, as has occurred in many other resource-poor countries. This qualitative paper raises very frank concerns associated with the ever-increasing exodus of scientists from the country; and suggests ways in which the prevailing circumstances may be reversed for the benefit of all stakeholders. Scientists in this context include persons active in the agricultural and earth, biological and life, physical and engineering, medical and paramedical sciences, mathematics, computers and information technology, as well as individuals involved in related and allied disciplines.

### **The African Diaspora question**

Diaspora is defined as the movement or scattering of people away from their ancestral homeland; people settled far from their ancestral homeland; or the place where these people live (Webster, 2008). In this paper, *Cameroonian scientists in diaspora* are limited to scientists of Cameroon origin living outside the borders of the Republic of Cameroon. The 21st century Diaspora

has adversely affected Africa's intellectual capital. Scientists gravitate to countries that pay better and provide better working conditions. These countries include Western More Developed Countries (MDCs), those in the Middle East, Brazil, China, India, Japan, Russia, emerging Asian Tigers, and South Africa. With the ever increasing shortage of scientists globally and particularly in the MDCs, recruitment agencies have become very aggressive in luring away scientists with the promise of better salaries. Thirty five percent of scientists in Diaspora were recruited while on African soil (Meyer and Brown, 1999). The migration of talented African scientists to other continents creates economic, intellectual, technological and strategic vacuums that, admittedly, remain extremely difficult to fill, and leads to continental dependence on foreign technical assistance. Some foreign experts come in under the cover of diplomatic, economic and industrial espionage, ostensibly to provide technical assistance. When African scientists move to other countries, Western citizens replace them as experts through technical aid, international agencies and multinational corporations. In many cases incoming visitors may not have the academic, professional or job experience, and cultural bearing of the displaced African citizen. These experts may erode the sense of national identity by espousing western ideologies in implementing policy, and sometimes by subtly influencing national cultural heritages.

The investment potential and experience base of the Africa Diaspora is on the rise, and financial flows in the form of remittances accounts for 5-20% of the Gross domestic Product (GDP) of some African countries. Annually, about 100 000 expatriates perform tasks that African scientists in Diaspora would likely perform for half the remuneration earned by the foreigners, who receive US\$ 4 billion annually (accounting for 35% of total development aid to the continent) (Meyer and Brown, 1999). Paradoxically, the majority of the remaining 65% goes back to the donor countries for equipment acquisition and consultancies. According to Meyer and Brown (1999), there are more than 300 000 African scientists in Diaspora. In 1995, 1 500 000 scientists in the USA were of foreign origin of which 72% were from developing countries (Meyer and Brown, 1999). Health care personnel alone from Africa contribute more than US\$ 100 billion annually to the West (Africa Diaspora, 2006), and this is close to three times the total remittances to the continent by all those in Diaspora. Should they return, they would bring back novel skills and techniques and constitute an integral part of knowledge transfer. They also send back to the continent more than ten times the amount being paid to expatriates (Africa Diaspora, 2006). Unfortunately, the remittances are for domestic usage such as payment of school fees, housing projects, marriage, medical expenses, maintenance of parents and relatives and funeral expenses. Remittance

charges benefit host countries. Recent statistics indicate that Africans in Diaspora remit more than US\$ 45 billion a year (Blunt, 2006). The amount of money sent back to the continent surpasses money coming in through technical assistance. African leaders and politicians are best advised to realign their thoughts on policy and decision making regarding the Diaspora and the conditions agreed upon for technical assistance by "donor" countries of the West. The gap between African countries and others continues to expand geometrically as the continent becomes less and less technologically and industrially developed.

The Africa Union recognizes that Africa Diaspora has skills and expertise required for development initiatives and programs on the continent (ICSU, NRF, 2006). The African Diaspora could be involved in the African Union S&T plan of action by providing human and technical resources, lobbying governments, institutions and foundations for support, being represented in government structures, providing policy and technical advice, and participating in networks which are beneficial to communities and nations (Africa Union, 2006). The AU may be advised to support programmes such as the Marie Curie Incoming International Fellowship for scientists, as has been successfully supported by the EU and has enabled participants from LDCs to spend some time in Europe in top research institutes to work and conduct research, and later return to their countries. Some countries such as Albania have been able to turn around their brain drain into national brain gain (Albania, 2006). Knowledge transfer through an expatriate nationals program is promoted by United Nations Development Program (UNDP). It assists highly skilled expatriates to return to their home country for short working visits of between three and twelve weeks to undertake some form of teaching or research activities (Meyer and Brown, 1999). The migrated scientific population could be involved in the civil, social and cultural activities of their country of origin. It may also be beneficial to recognize dual citizenship status with some relative benefits to the holder (Tande, 2006). Several MDCs recognize the dual citizenship of their nationals. Countries may passively ignore or actively prohibit dual citizenship (Wales, 2006), but its acceptance is proving more beneficial to both parties.

### **Cameroonian scientists and the Diaspora question**

Brain drain and the Diaspora inclusive of refugees are closely interwoven. Significantly, it is the perpetual depletion of intellectuals particularly from the LDCs to the MDCs primarily for economic gain and also for professional fulfillment. In the 60s and 70s, Cameroon benefited from brain gain in that its citizens overseas were encouraged to return home. A number of the

scientists who returned eventually became university lecturers, rising to professors, policy makers, government directors and ministers. However, with an ever-increasing number of high school leavers qualified for tertiary education, government increased the number of state-run universities from one (which prevailed since 1960) to six (Buea, Douala, Dschang, Ngaoundere, Yaounde I and Yaounde II) in 1993. Human capital contributions have also come from the Advanced School of Engineering, School of Public Works, and Demographic Training and Research Institute, all in Yaounde. There were accompanying staffing and crucial infrastructural needs with the creation of these universities, especially in the sciences, and these needs are yet to be met at a satisfactory level.

Graduates trained in the sciences flooded the national job market. The most obvious employment that stood clear was recruiting the scientists as high school teachers for biology, chemistry, mathematics and physics. Because of their training, administrative and leadership positions in high schools and the Ministry of Education were more often given to their colleagues from the Advanced Teachers Training College Yaounde and its annex in Bambili. Favoritism and tribalism often overshadowed meritocracy in appointments and promotions. Additionally, bureaucracy did not establish clearly demarcated pathways for which the frustrated and disgruntled scientists might advance their careers. Tough labour laws, an unreliable legal system, high taxes, and poor banking conditions made it difficult for the scientists to set up basic and processing industries. Against this backdrop, the scientific human capital was left with no other choice than to join the bandwagon of other scientists from LDCs rapidly drifting to the MDCs.

Among the deciding push factors Cameroonian scientists in the Diaspora advance for their departure from the country are very low salaries exacerbated by a weak currency and purchasing power disparate to their educational attainment and several other factors; poor working conditions, no health benefits, lack of appropriate housing and educational opportunities for family members, poor transportation infrastructure; unpredictable professional growth, advancement or career fulfillment; lack of research and related laboratory facilities or necessary funding. Countries which provide an alternative to these allow them to each serve as a strong pull factor, very attractive to the scientists. These include better salaries and wages; high standard of living; excellent working conditions, prospects for career advancement and recognition; availability of varied and various research opportunities, regularly upgraded laboratory facilities and funding; intellectual freedom of expression. These and other appealing conditions not only attract Cameroonian scientists but those of other African countries as well.

Today, although in the country there are extremely

proficient, reputable and well established scientists of very high calibre, yet there are numerically more qualified, experienced, specialized, highly renowned and internationally acclaimed Cameroonian scientists working and living comfortably outside the country. Migration policies continually favour better educated people, which may account for the educational composition of migrant populations being skewed towards the better educated (Carrington and Detragiache, 1999). Most of the Cameroonian specialized medical doctors, academics and researchers in the sciences and engineering with PhDs and fellows of professional, institutional and statutory bodies work for international organizations, governments, universities, research institutes, agricultural and food processing, aviation and aeronautics, chemical and petrochemical, mining and minerals, biotechnological and microbiological, and solar and appropriate technology industries outside Cameroon. These Cameroonian scientists contribute very positively to the global advancement of S&T for R&D. However, their contributions are in general statistically not directly associated to their country of origin.

### Scientific and technological issues

The LDCs possess more than 85% of global resources but quite unfortunately less than 15% of the world's scientists live and work in MDCs (Ekosse and Nkoma, 1995). With the most favourable working conditions and job fulfillment, the USA has dominated in terms of recipients of the Nobel Prize in the Sciences during the last 50 years even though some of the recipients are from the diaspora. When compared to other developed countries like Great Britain, it comes clear that researchers and scientists in USA have an exceedingly enabling environment allowing them to carry out individual and institutional research. The conspicuous absence of African recipients of the very prestigious Nobel Prize in the sciences may be due to the fact that there are no enabling environments for effective scientific research in the continent, and Cameroon is no exception. Due to the high exodus of scientists from the continent, Africa's scientific output has fallen from 0.5 to 0.3% (Brain Drain in Africa, 2005), and may continue to drop if continental and national efforts are not immediately put in place to stem it.

Technology has been a key to scientific advancement of communities. However, technology transfer, which dominated most of the latter half of the previous century, has taken on a different dimension today being influenced as it is by Information Communication Technologies (ICTs), as globalization continues to gain more ground, reducing the world to one big global village. Nations explore ways, in which scientific and technological knowledge could be acquired, retained,

disseminated and improved upon. The explosion in contemporary scientific knowledge has made principles, methods and techniques for economic and industrial growth and advancement readily available through ICTs. Countries such as Brazil, China, India and South Africa, and the emerging Asian Tigers are employing the Information Technology Super Highway very effectively to their scientific advantage. For Cameroon to have any meaningful and significant economic and industrial growth, human wellness and human well being, it must imperatively improve its ICTs by reducing cost, increasing accessibility, and making use of up-to-date tools. Unfortunately most of the required qualified, specialized and experienced Cameroonians in ICT are gainfully employed overseas in Britain, China, France, Germany, and USA, among many other countries.

Prior to recruitment, scientists may have undergone several years of training, and in order to keep abreast with the continuous advancement of knowledge in their respective disciplines, there is need for active participation in conferences, colloquia, in-service training, short courses, seminars, symposia and workshops. Science is dynamic in knowledge growth and so scientists who do not get involved in knowledge refreshment and growth programs become professionally redundant. In the country (Cameroon), laboratory structures are either absent or have become dilapidated lacking functional equipment and instruments as well as consumables. Laboratories need laboratory information management systems (LIMS) which deal with laboratory analytical systems (LAS) and laboratory management systems (LMS). Laboratory equipment and instruments are manufactured in the MDCs and the models are constantly being replaced by more sophisticated ones often out of financial reach of the LDCs.

With the ever increasing rate of departure of Cameroonian scientists for greener pastures, role models for junior scientists at home are lacking. Those they could have understudied are several thousand kilometers away from home tackling scientific problems with a bias towards their host countries. Appropriate academic, research and institutional forums for training and guiding of graduate students (MSc and PhDs) in the sciences are conspicuously absent. However, in circumventing the problem, deals could be worked out in which Cameroonian scientists in Diaspora could be involved in co-supervision of graduate students, and their laboratories and research centres in host countries could serve for experiments. The student may then spend part of his/her study period in the co-supervisor's host country, and the latter may be invited for a brief sojourn in Cameroon purposefully related to the project supervision. On the other hand, Cameroonian scientists abroad seeking higher degrees could work on relevant research topics of national interest, and be attached to a home institution although the host institution will eventually

award the degree.

Facilities should be provided in the country, which encourage Cameroonian scientists in Diaspora to return home, even on a short term basis. The scientists could be invited to work in universities, research and teaching laboratories, primary health care units, basic, referral and teaching hospitals, as well as research institutions in the country. Through the use of computer centres, video-conferencing (Albania, 2006) could be organized. Opportunities for micro and macro joint scientific research projects could be further explored and executed in both applied and traditional research. Outcomes from such collaborative endeavors will be beneficial to the scientists through co-authored publications, and to the two institutions and countries – a win-win situation. The ground will thus be prepared for unique opportunities involving the combined research efforts of the government, industry and scientists both in Diaspora and those at home. Through combined scientific research efforts, the country could embrace a new identity and emerge strong internationally in a commodity unique to its national identity. The outcome of such research could further lead to obtaining patents, specialized investments, and products being processed into finished, affordable and marketable commodities.

There are excellent natural laboratories and field sites for both empirical and applied scientific research opportunities in Cameroon largely due to its varied climatic, geologic, geomorphologic, and hydrological heritages, as well as its people, their customs and cultures. The country has several collections of fountains and springs, lakes and volcanic maars, streams, rivers, seas and ocean. Its biodiversity is enriched with hundreds of thousands of species including exotic and endangered ones. Through collaborative research resident scientists have had their works enhanced and featured in international publication outlets. Few indiscriminately selected examples of scientific collaboration with the Diaspora and overseas institutions are herein given. In the area of medical and life sciences, research carried out on habitual diet in rural and urban Cameroon involved participation of three different institutions in France, England and Cameroon respectively (Mennen et al., 2000). Colleagues in the Faculty of Biomedical and Medical Sciences in University of Yaounde I worked with those from New Zealand and England on obesity related to diabetes affecting the adult urban population in Cameroon (Kamadjeu et al., 2006). Hypertension and diabetes prevalence in urban and rural Cameroon has also been researched through collaborative efforts between staff of INSERM, Villejuif, France, those of the Department of Diabetes and Metabolism of the University of New Castle upon Tyne, England; and of Département Sociétés et Santé, Paris, France with staff of the University of Yaounde I (Mbanya et al., 1998; Sobngwi et al., 2002; Kamgno et al., 2003).

Colleagues at University of Buea and University of Dschang have fostered collaboration with those at Stockholm University in Sweden in the area of antiplasmodial activities (Ngemenya et al., 2006). Through joint efforts in the areas of agricultural sciences and engineering, research has been conducted on root nitrogen levels in sorghum (Ayongwa et al., 2006), and other researchers in Nigeria, Kenya and Germany have collaborated with those in Cameroon on phosphorus benefits related to legumes and maize (Jemo et al., 2006). Through joint research efforts between staff of University of Ngaoundere and those of University of Vienna, Austria in chemical and physical sciences, essential oil compounds in *Annona muricata* (soursup) were identified and characterized (Jirovetz et al., 2006), setting grounds for further work on one of our cherished indigenous fruits. In the area of Science Education, collaborative work between institutions in Canada and Cameroon led to the publication of the article on Women and Science Education in Cameroon (Woodhouse and Ndongko, 1993).

Micro-scale collaborative research addressed the 2001 landslides in Limbe (Ekosse et al., 2005). Further collaboration led to the recognition of exploitable kaolin and limestone in Ndiian Division (Ayonghe et al., 2006). The joint work of Tematio et al. (2004) investigated the soils of the Bamboutu Volcanic Mountain. Clays and clay minerals occur in substantive quantities in Cameroon (Ekosse, 2002), and with the aid of Cameroonian scientists in the Diaspora, targeted applied research could be carried out for the most efficient exploitable and marketable methods in utilizing these resources. The Cameroon Volcanic Line (CVL) hosts several Crater Lakes and Volcanic Maars in which huge accumulations of CO<sub>2</sub> acts as a time bomb but could also be harvested for economic gain (Ekosse, 1998). These could serve as field laboratories such as the Okavango delta in Botswana. Cameroon's biodiversity is one of the richest in the world and research on primates, for example, could be promoted in productive collaborative ventures. With the acquisition of the Bakassi Peninsula, it is imperative for Cameroon to encourage its scientists in Diaspora to work with those residing in the country to investigate ways in which the peninsula could be beneficially exploited through sustainable development. These and several other collaborative undertakings would contribute to increasing Cameroon's body of knowledge in the sciences. The undertakings could also include establishing new journals and linking to other regional and international journals, as well as being involved in peer review processes for publications. The gainful use of Cameroonian scientists in the Diaspora could also be extended in establishing new scientific institutions for teaching, research and industrial expansion in Cameroon.

Nokia is a small town of 28,000 residents in Finland,

but one out of every three mobile phones in the world carries its name, and this business which runs into billions of dollars every year will continue to dominate the mobile phone industry for several years to come. Inexpensive clothing and shoes from China are present in almost every country in the world, and Western countries find themselves severely threatened as they try to protect their similar products. Cuba maintains one of the most efficient health services in the world. It is a prime concern for its government to make available health providers and health services to everybody. Money from Venezuelan oil is pumped back to develop its petrochemical industry and to provide education for all of its citizens. Singapore makes most of its money from service industries, particularly transportation. For over a thousand years, stock fish (sun-dried cod) alias "Mokanjo" has been one of the trading commodities of Norway. The scientists there took advantage of their few winter months, pure air, and cold climate to improve upon fish preservation and developed this inexpensive process that today stands as one of the best sources of fish protein, vitamin B, iron and calcium. Along the beaches and coastal towns of Cameroon, it is clear that large quantities of fish are thrown away every day because of rapid quality depreciation due to the humid climate and very poor handling of the catch. While Cameroonians love to eat bass (*cuta*), "mbonga", "monyanya" and other fish species, they are becoming unavoidably expensive for the average citizen. Methods of traditional fish preservation can be improved upon, as well as setting of fish preservation and canning industry. The same holds for hundreds of both domesticated and wild edible fruits, which very easily putrefy and are discarded every year. Proper development of fruit processing and exportation is unequivocally called for.

### **National and patriotic issues**

Training of scientists is capital-intensive and a form of human capital investment. Scholarships could be offered to deserving high school students. Quite a number of Cameroonian scientists living abroad had their education paid for by the home country, and some even signed binding bonds of service to the government for a period. Many of the graduates did not honour this contract. Different worldwide scholarship and grants programs, particularly in the sciences, have attracted Cameroonians to pursue graduate studies. Upon attainment of their graduate qualifications, there are several opportunities for better jobs in the MDCs and other countries with better economic standing. At the same time, there are no suitable job openings for the graduate returning home. Those who return to the country and are employed join their colleagues in non-job related activities to boost their income. This dimension of brain drain, which occurs

within the country, has been identified as internal brain drain (Edokat, 2000). University lecturers in particular pursuing several other economic activities because of very low salaries, leave them with little or no time for true quality research. Efforts should be stepped up in curtailing internal brain drain by improving the working conditions of those concerned. The bottom line is that internal brain drain is a step towards leaving the country.

Figures for remittances to Cameroon from the Diaspora could be deceitful. This is because several financial transactions are carried out unofficially and through *gentleman's agreements* which are not projected by financial institutions. Cameroonians could send money through friends and relatives traveling to the country, and other transactions could take place in kind. However, remittances end up in domestic consumption. It could be more encouraging and rewarding to both government and Diaspora if organizational structures and enabling environments for investment are available to attract the Diaspora by offering opportunities for economic activities. Preferential treatment could be afforded to the Diaspora, such as the opportunity to buy equipment duty free or with very low taxes, and arrangements could be made with Central/Reserve Banks on how Diaspora finances should be treated. This form of foreign direct investment will bring in more funds to the country than Overseas Development Assistance (ODA). Suggestions have been advanced for the introduction of a tax on the brain so that recipient countries are taxed. The introduction of ethical recruitment which would prevent certain kinds of professional from poor countries, or the payment of compensation by the MDCs to the LDCs for grabbing skilled personnel have also been postulated (Albania, 2006). This form of benefit from the Diaspora by Cameroon could cover taxing countries which employ its citizens; introducing a form of migration tax to be paid by the MDCs. The Diaspora could be treated as a form of international trade. The Doha Agreement caters for migration for service industries, but the World Trade Organization (WTO) should go beyond this and look into ways of rewarding human capital and skills from one country to the other; especially if the flow is from an LDC to a MDC.

African governments lose their inconvenient, challenging scientists at their peril. They consider the African Diaspora as unfriendly and in opposition to the ruling political parties and government. This false assumption must be eradicated from the administrative and political mindset of the nations. This unwelcoming attitude makes return very difficult for the Diaspora. Governments should work with their foreign missions to keep the lines of communication with the Diaspora constantly open, but in most cases, the foreign missions have a hostile approach towards them. In reality, most African scientists in Diaspora are apolitical, and are extremely very busy with their time-consuming jobs,

leaving them with no time for social and political activities. They are also very patriotic, seeking genuine opportunities to positively contribute to the well being of their home countries by the application of S&T through R&D. Through the foreign missions of Cameroon, the government and its municipal/urban councils could work with Cameroonian scientists in the Diaspora on local development projects that will uplift the image of the councils. Private, public and institutional corporations in Cameroon could seek consultancy services from Cameroonian scientists, including those in Diaspora, who have a better understanding of the realities of the country than expatriates.

### **A positive outlook**

A number of countries have worked with their Diaspora in creating enabling environments for its participation in improving living conditions in home countries. These include Brazil, China, India and South Korea. Some recorded successful achievements are the efforts of the governments of Ghana and Zambia in getting its Diaspora involved in developmental projects. These countries have recorded success stories, and Cameroon could learn from some of their examples. One of such stories is how their scientific Diaspora has been able to form small and medium sized companies that provide job opportunities for their citizens. Recently, the Government of Cameroon created a division within its Ministry of External Relations to be responsible for relations with its Diaspora. Some further suggestions for future and better operations beneficial both to the scientific Diaspora and the Government and people of Cameroon are mentioned below. Considering the experience and exposure, Cameroonian scientists in Diaspora could be invited to play a major advisory role on policies and matters regarding S&T. Since they work abroad, they are in an excellent position to establish appropriate connections for the acquisition of equipment that could be refurbished. Sometimes overseas laboratories request recipient countries to be responsible for shipping charges and possibly the cost of refurbishment.

In addition, specialized laboratories overseas could be made available for scientists based in Cameroon to work with their counterpart compatriots in the Diaspora. The short term visits could be reciprocal especially if the scientists in Diaspora would like to impart special skills to several colleagues who are based in Cameroon. These and other similar arrangements could be consolidated through professional networking. The networking efforts could culminate in the formation of Associations of Cameroonian Scientists in Diaspora – to aid in improving S&T for R&D in the country. The Cameroon Academy of Science could also be a principal stakeholder and driver.

Unfortunately, persistent problems arising from

technological change, such as the inability to develop and sustain basic ICT infrastructures, may pose a hindrance. These, however, must be overcome.

National investment in the training and development of human capital and physical resources must be very significantly improved. Its rewarding of scientists (salaries and working conditions) should be revisited. It is one of the cardinal methods of retaining, retrieving and reversing the movement of scientists and encouraging them to return to Cameroon. The country should facilitate rewards for its scientific Diaspora as forms of recognition of achievements. The recognition could be in the form of medals and other national honours through transparency, meritocracy, and an unbiased approach. National prestige should be associated with such awards, which may include some money and/or property, making it desirable, and coveted by the scientific community in Diaspora.

Because of national accountability, the Government should investigate/commission researches on reasons for departure or take off of the scientists; the means of reducing this brain drain and the duration of stay abroad; what the scientists are doing out of the country and how they can be reintegrated back home. A commission should be set up to work with government, industry, scientists both at home and abroad, and interested stakeholders in squarely addressing this pertinent issue of regaining its scientists in Diaspora. Working visits, workshops could be organized and policies could be formulated with the primary objective of investigating and introducing conditions that will hold back the scientists from migrating to greener pastures. Let the pastures of Cameroon become greener and there will be an influx back to national base of Cameroonian scientists living in and out of the country.

### **Conclusion**

Cameroon, like many other LDCs has witnessed the migration of its scientists to MDCs largely due to the presence of non competitive working conditions. The country is focused on stretching its meager resources to cover several competing projects of national and paramount interest. Its investment in S&T for R&D is very inadequate, resulting in dwindling in the numbers of its resident scientists. An immediate and vigorous response intervention is required. The solution to the Diaspora question may involve several stakeholders: the scientists both at home and abroad, governments of home and host countries, and national and international corporations, organizations and agencies. Most of the responsibility for bringing back the Cameroonian scientific Diaspora rests on efforts made by the Diaspora to return to their home country and more squarely with the nation. National efforts should be geared towards addressing this

untenable situation which, if properly handled, will be beneficial to the government and cherished people of Cameroon.

## REFERENCES

- Africa Diaspora (2006). Mobilizing the African Health care professionals and Resources for Capacity Building in Africa. Analysis of Survey, Africa Recruit, London, United Kingdom.
- African Union (2006). Human Resources, Science and Technology. Report of the Conferences of the Diaspora and the African NGOs on the Popularization of Science and Technology. Extraordinary conference of the African Ministers of Council on Science and Technology (AMCOST), Cairo, Egypt, pp. 20-24.
- Albania (2006). From brain drain to brain gain: Mobilising Albania's skilled Diaspora. A UNDP policy paper for the Government of Albania, Prepared by the Centre for Social and Economic Studies, in collaboration with the Development Research Centre on Migration, Globalization and Poverty, University of Sussex, UK.
- Ayonghe SN, Wantim MN, Ekosse G, Chinje UM (2006). The geology, stratigraphic setting, and economic potentials of limestone deposits in the South West Province, Cameroon. Paper presented at the 1<sup>st</sup> Symposium of the Stratigraphy of Cameroon's Sedimentary Basins, Kribi, Cameroon, pp. 8-10.
- Ayongwa GC, Stomph TJ, Emechebe AM, Kuyper TW (2006). Root nitrogen concentration of sorghum above 2% produces least *Striga hermonthica* seed stimulation. *Annal. Appl. Biol.*, 149 (3): 255–262.
- Blunt E (2006). How Africa is courting its exiles. BBC News. <http://newsvote.bbc.c.uk>. Accessed 23 January 2007.
- Brain Drain in Africa (2005). The Brain Drain in Africa Facts and Figures. 6pp. Economic Studies, in collaboration with the Development research Centre on Migration, Globalisation and Poverty, University of Sussex, UK, p. 33.
- Carrington WJ, Detragiache E (1999). How extensive is the brain drain? *Finan. Develop.*, pp. 46-49.
- Edokat T (2000). Effects of brain drain on higher education in Cameroon. In S. Tapsoba, et al., (Eds.) Brain drain and capacity building in Africa. Dakar, Senegal: ECA/IDRC/OPM, pp. 174-183.
- Ekosse G (1998). The potential role of organic matter as a secondary source of sedimentary gases produced in the volcano-lacustrine environment of Lake Nyos Maar, Cameroon. *J. Afr. Res. Dev.*, 27 &(28): 228-236.
- Ekosse G (2002). Cameroon's white gold: Opportunities for kaolin production. *Indus. Min.* pp. 422: 454.
- Ekosse G, Nkoma JS (1995). Laboratory Technology in developing countries. Institute of Science Technology, UK. *Sci. Technol.*, 34: 23-27.
- Ekosse G, Ngole V, Sendze Y, Ayonghe S (2005). Environmental mineralogy of unconsolidated surface sediments associated with the 2001 landslides on volcanic cones, mabeta New Layout, Limbe, Cameroon. *Glob. J. Environ. Sci.*, 4 (2): 115-122.
- Human Development Report (2006). Beyond Scarcity: Power, poverty and the global water crisis. Human development indicators, Country fact sheets, Cameroon: the human development index – going beyond income, published for the UNDP, p. 440.
- ICSU NRF (2006). Proposal for development of a work plan for the African Diaspora brain gain project. A partnership between the National research foundation of South Africa and the International council for Science regional Office for Africa. RCA4 3/3.2.5.
- Jemo M, Abaidoo RC, Nolte C, Tchienkoua M, Sanginga N, Horst WJ (2006). Phosphorus benefits from grain-legume crops to subsequent maize grown on acid soils of southern Cameroon. *Plants and Soil*, 284 (1-2): 385-397.
- Jirovetz L, Buchbauer G, Ngassoum M (2006). Essential oil compounds of the *Annona muricata* fresh fruit pulp from Cameroon. *J. Agric. food Chem.*, 46: 3719-3720.
- Kamadjeu RM, Edwards R, Atanga JS, Kiawi EC, Unwin N, Mbanya J (2006). Anthropometry measures and prevalence of obesity in the urban adult population of Cameroon: an update from the Cameroon Burden of Diabetes Baseline Survey. *Biomed. Central. Com. Public Health*, 6: 228. doi:10.1186/1471-2458-6-228.
- Kamgno J, Pion SDS, Boussinesa M (2003). Demographic Impact of Epilepsy in Africa: Results of a 10-year Cohort Study in a Rural Area of Cameroon. *Epilepsia*, 44 (7): 956–963.
- Mbanya JCN, Minkoulou EM, Salah JN, Balkau B (1998). The prevalence of hypertension in rural and urban Cameroon. *Int. J. Epidemiol.*, 27: 181-185.
- Mennen LI, Mbanya JC, Cade J, Balkau B, Charma S, Chungong S, Cruickshank JC (2000). The habitual diet in rural and urban Cameroon. *Eur. J. Clin. Nutr.*, 54 (2): 150-154.
- Meyer JB, Brown M (1999). Scientific Diaspora: a new Approach to the brain drain. World conference on science, UNESCO-ICSU, Budapest, Hungary, p. 26.
- Millennium Project (2004). Interim Report of Task Force 10 on Science, Technology and Innovation, Commissioned by the UN Secretary General and supported by the UN development Group, p. 174.
- Ngemanya MN, Akam TM, Yong JN, Tan PP, Fanso-Free SNY, Berzins B, Titanji VPK (2006). Antiplasmodial activities of some products from *Turreanthus africanus* (Meliaceae). *Afr. J. Health. Sci.*, 13 (1-2): 33-39.
- Sobngwi E, Mbanya J-CN, Unwin NC, Kengne AP, Fezeu L, Minkoulou EM, Aspray TJ, Alberti KGMM (2002). Physical activity and its relationship with obesity, hypertension and diabetes in urban and rural Cameroon. *Int. J. Obes.*, 26 (7): 1009-1016.
- Tande D (2006). Dual citizenship: time for a long overdue national debate. <http://www.dibussi.com/> Accessed 23 January 2007.
- Tematio P, Kengni L, Bitom D, Hodson M, Fopoussi JC, Leumbe O, Mpakam HG, Tsozue D (2004). Soils and their distribution on the Bambouto Volcanic Mountain, West Cameroon Highland, Central Africa. *J. Afr. Earth Sci.*, 39: 447-457.
- Wales R (2006). Dual citizenship FAQ: Dual nationality and United States Law. <http://www.richw.org/dualcit/> Accessed 23 January 2007.
- Webster M (2008). Diaspora. Merriam Webster's Online Dictionary. <http://www.m-w.com/dictionary/diaspora>. Accessed 15.
- Woodhouse H, Ndongko TM (1993). Women in science education in Cameroon: some critical reflections. *Interchange*, 24 (1-2): 131-158.