DEDICATION TO COUNTRY AND PROFESSION VERSUS SURVIVAL CONTRADICTIONS IN DEVELOPING COUNTRIES

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Abstract *¾ The problem of brain drain, involving migration of professionals from developing countries to developed countries is well documented. The situation does not seem to getting better and sooner rather than later both developed and developing countries have to come together to resolve this problem. The authors start the paper with general discussion of origins and destinations of highly trained engineering educators in developing countries with estimates of what it costs to train them. In their paper, the authors pose scenarios and options that they consider important including new opportunities resulting from high technology, globalisation and Internet. Among the scenarios is the harmonisation and modularisation of courses especially those towards the end of degree programs, including postgraduate degree programs. These would allow short exchanges of lecturers and students, which would result in mutual benefits for the participating institutions. This scenario can lead to truly regional or global institutions in which engineering educators are not tied to one local institution but are part of a network. The authors believe that these networks can best operate at regional level, involving neighbouring countries.*

Index Terms ¾ Brain Drain, Educational Cooperation, Economic Migration of African Academics, Virtual Universities.

INTRODUCTION

Much has been written about the “African Brain Drain”, which is not new according to studies by the United Nations and other international bodies. Between 1960 and 1975 an estimated 27,000 highly qualified Africans left the continent for the West, according to a study by the Geneva-based intergovernmental body, the International Organisation for Migration (IOM), and the UN's Economic Commission for Africa (ECA). This number increased to approximately 40,000 between 1975 and 1984, and then almost doubled by 1987, representing 30% of the highly skilled manpower stock. Africa lost 60,000 professionals (doctors, university lecturers, engineers, etc) between 1985 and 1990, and has been losing an average of 20,000 annually ever since. According to the 1993 UN Development Programme's (UNDP) Human Development Report, there were more than 21,000 Nigerian doctors practising in the US alone, while Nigeria's health system suffers from an acute lack of medical personnel. Approximately 60% of Ghanaian doctors trained locally in the 1980s had left the country, while in Sudan 17% of doctors and dentists, 20% of university lecturers and 30% of engineers in 1978 alone had gone to work abroad. Katrin Cowan-Louw, Assistant Programme Officer at the IOM, said, 'There are more African scientists and engineers working in the US than there are in Africa. Long-term economic growth cannot be achieved by primarily exporting natural resources'. It is widely believed that the flight by these very highly skilled and specialized professionals has contributed to Africa’s woes and its marginalisation in the global economy. About 250,000 skilled Africans work in Europe and North America while 100,000 expatriates are employed in various capacities as part of aid agreements in different countries of Africa. In monetary terms the cost is a staggering US$4 billion a year (Meyer and Brown) [1]. According to the IOM, there are currently just 20,000 scientists and engineers in Africa (or 3.6% of the world's scientific population), servicing a population of about 600m. Africa would need at least 1m scientists and engineers to sustain the continent's development prospects. At least one-third of science and technology professionals from developing countries are currently working in Europe, the US, Canada and Australia. This paper is written within the context and attempts to suggest practical measures which can be implemented by academic institutions.

THE ACADEMIC SETTING IN A DEVELOPING COUNTRY

TYPICAL SCENARIOS

When one examines the visions and mission statements of educational institutions world over, the term “excellence” is seldom absent, and indeed academic excellence is a benchmark for most universities. When one visits a so-called excellent institution, it is clear from looking at the men, materials and the management, that excellence exists indeed. At the same time it is clear that a great deal of money, much of it from large corporations is also in play. Such a scenario is rare in Africa and most developing

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countries. The scenario that obtains is characterised by the following:

- Academic Staffing, well below complement (see TABLE 1 based on Liverpool, Eseyin and Opara [2]), staffing situation in Mathematics Departments of a select group of Nigerian Universities.
- Lack of teaching resources, including textbooks, computers and laboratory equipment.
- Low Salaries and inferior working conditions
- A dissatisfied student body, usually because of low grants.

TABLE 1

University	Full-time Complement	Actual (Head Count)
U of Ibadan	445	229
U of Nigeria	860	103
U of Jos	444	273
U of Iloria	565	234
Abu Bakar Bauchi	273	168

In this paper an attempt shall be made to give proposals which if seriously implemented would help reverse the increasing tendency of large numbers of highly qualified academics to emigrate to the west, leaving their home countries with acute shortages of manpower. In addition, it is hoped that the proposals would also encourage those already outside to come back to assist in the development of their countries and perhaps more importantly, suggest mechanisms that would allow those academics with scarce skills to contribute to Africa's development, from wherever they are.

ADDRESSING MANPOWER REQUIREMENTS WITHIN THE UNIVERSITY SETTING

Although there are may be small differences in approach when it comes to the planning for academic manpower, there are more commonalities. However, in many African universities the whole planning process becomes an academic exercise because of sudden resignations and even absence without leave. The typical occurrence therefore is that of institutions reacting to events rather to being in control of them Schoefield [3].

In their report, Blair and Jordan [4] on the theme on the "Retaining Teaching Capacity in African Universities, Problems and Prospects", the Authors provide detailed analysis and comment on the data they collected, and make suggestions and recommendations for improvement and policy interventions. According to them the essential factors for improved staff retention are identified as follows.

- Economic growth and revival;
- Greater autonomy for universities;
- The development of diversified sources of funding so as to remove the total dependence of universities on governments for financing;
- A wide range of staffing policy options are suggested, with the only viable way forward possibly being a "trade-off" between high, competitive salaries, or maintaining existing conditions which provide good leave and travel benefits (in practice as well as in theory), a relaxed working environment, and a general lack of accountability;
- Strong leadership is essential, and reinforced and restructured university personnel offices and programs are crucial;
- The research environment is vital for viable academic staff recruitment and retention, particularly at the more senior levels, and a number of policy options for the achievement of an improved research environment are proposed;
- Other areas requiring attention for successful staff retention, in addition to salaries, are a means to obtain housing and suitable transport, and an urgent improvement in university facilities.

It should be noted that many of the above measures which were recommended more than 5 years ago are now only getting attention and not without controversy. There exists still many institutions with entrenched procedures who still adopt the method of reaction. Almost religiously, when a vacancy arises, they go through all the formalities of advertising for the vacancies in the press, conducting interviews and making offers. Quite often, there are no responses, or, if there are any, the qualifications of the applicants are not adequate. In the few cases where the applicants meet the criteria, offers are actually made but the successful candidates, on reflection, reject the offers or attempt to negotiate a delay in taking up their appointments (many do this to buy time, while they seek alternatives). As an alternative, African Universities institute staff development programmes, which enable young graduate to pursue masters and PhD studies in other countries, usually in Europe and North America. In the early years these were successful and many present academics were in this process. The prospect of them not returning was always there and therefore there was usually a bonding agreement attached to each fellowship. The substance of the agreement was that a

fellow had to return immediately on completion of the course and had to serve the institution for a period at least as long as the Fellowship itself, otherwise the fellow would have to reimburse the institution an amount equal to that spent by the institution on the Fellow, plus interest. In many cases these agreements did not work, some students simply did not return and simply did not refund even what would effectively be a very small sum considering the Fellow's income abroad. The earlier staff development fellowships were very attractive in that they allowed the Fellows to study in top Universities in North America and Europe and the funding was relatively generous in the sense that while the Fellow was abroad, his salary and pension continued to be paid at home. However these schemes worked as long as the country's economy was normal. In the case of Zimbabwe the virtual economic standstill has meant that professionals are now working under very difficult conditions with serious consequences for their families. Many find that it makes better economic sense to emigrate or work without visas in countries like Britain. Often the tasks they do are menial but because of the favourable rate of exchange, the rewards are very attractive. Such scenarios are clearly unacceptable, and we should therefore examine alternatives.

THE NEW ALTERNATIVES

In the above section the traditional approach was adopted to solve the question of the scientific area brain drain. Unfortunately this approach is only effective within normal economies, at the moment the only predictable thing about the economies seems to be that they are going to get worse. Yet it is known that most of those skilled people would enjoy working in their own countries if only the economic environment allowed them to do so. The newly industraliased countries like Singapore and Korea have managed to attact their highly skilled and qualified nationals back and this has been possible through successful realiasion of attractive and sustainable scientific / technological infrastructures that allow scientists and engineers to thrive. Unfortunately for Africa, this option, that of the skilled nationals returning, is not yet viable and the situation may remain so until the economic and political problems that beset many countries are resolved. Therefore we shall continue to see the scenarion in which Africans are obliged to work in unfamiliar climates with the unlucky ones often having to experience xenophobia and racism. It is fruitless to appeal to whatever patriotism may still be left in them. It is perhaps useful to capture the sentiments expressed by Dr Gichure wa Kanyungo, a Kenyan-born psychiatrist, working in the U.S. city of Boston, "Many of the professionals are interested to return home, but domestic conditions do not allow them to do so,.... you see, you cannot eat patriotism." *The new alternative strategy is to accept reality and adopt the stance that, most of the professionals already outside will not come back to Africa to stay, but may be interested in making a contribution to their home countries. They will be very glad to do so from their foreign bases, and they will also be quite happy to come to Africa for short stays.* The European Eunion (EU) through the organisations it funds, International Organisation for Migration (IOM), has attempted to solve the problem using the alternative approach. According to the IOM the latest initiative will be different, allowing skilled Africans working abroad to contribute to the development of their home countries without giving up the better salaries and lifestyles that they left to pursue. According to Katrin Cowan-Louw, Assistant Programme Officer at the IOM, 'We're looking at three possibilities here: temporary return, virtual return and economic return'. Under the temporary return programme, a qualified and experienced Zambian doctor working in Canada, for example, would be assisted to return home to teach, perform operations or share skills for a finite period. *virtual return* involves skill-sharing, teaching, mentoring and even marking exam papers via the Internet. The *virtual return* cited by Louw is similar to the *diaspora option* presented by Meyer and Brown [1].

The diaspora option is more recent and is based of the known scenario that many of tose nationals from the affected countries that have already left for mainly western countries in Europe and North America (in fact 50% of those foreign students earning their doctorates in the US do not return to their countries of origin) are not likely to return. The scientists and engineers have settled and to all intents are now inhabitants of these western coutries. This is however being very simplistic and in reality the memories, even the concerns over the wellbeing of their countries of birth are there; in Africa family ties are very stong and extended families typify the very nature of his soul. With the dispora option the objective, is to create the links through which they could effectively and productively be connected to its development, without any physical temporary or permanent return. The implentation of this option can take several forms:

- Bilateral projects. The projects that are favoured include those that are meant to improve the quality of life, and the fighting of disease, such as those involving water and sanitation or the fighting of disease, such as AIDS. By their very specialised nature, these initiatives can only attract a smll section of experts. Often these are linked to political or trade agreements and any souring of relations between the countries in the agreements often leads to the termination of activities.

- Projects involving multinational corporations. Such projects are usually linked to the financial interests of the cooperation and when this lasts this affords an opportunity for scholars and scientists to work on projects that are directly related to the development of their country. The activities

possible are unfortunately limited to those that coincide with those of the sponsors.

- Projects involving Foundations. This presents an oportunity for academics to work within an independent setting and also to engage in investigations at a fundamental level.

A unique advantage of the Diaspora option is that unlike the return option no massive additional investment is required and to implement it requires organization and the setting up of appropriate networks. Worldwide there are already some networks including regional Arab Scientists and Technologists Abroad (ASTA) and the Latin American Association of Scientists (ALAS). There is also the Transfer of Knowledge Through Expatriate Nationals (TOKTEN) a UNDP intellectual/scientific Diaspora network.

According to Meyer [1] in order to be classified as such, networks must fulfill the following criteria:

1. members must be mostly nationals of a particular country living and working or studying abroad;
2. members must be highly skilled, active in a number of professional fields, specifically conducting scientific research;
3. the networks must have as their main purpose the economic and social development of the country of origin;
4. there must be a degree of connection or linkage between different network members and between network members and their counterparts in their country of origin.

Figure 1 Year 2000 Electrical Engineering Graduates, University of Zimbabwe

THE INTER-UNIVERSITY DEPARTMENT MODEL

While the regional and country networks described above are a step forward, in their application they exclude a large sector the scientists and engineers whose expertise is outside the parameters specified by the sponsors. In particular, the Universities in Africa which are more seriously affected by the brain drain, play only a limited role. To address this problem it is proposed to have a *one to one* interaction between University departments. It is suggested that the departments start out by identifying common synergies, and common courses thus allowing courses to be taught in either of the cooperating departments within regions or even across continents. The modalities of implementing such a concepts are as follows:

1. Start informal contacts with potential University departments and identify critical personalities. If there are good grounds to proceed further then,
2. Prepare formal agreements with the endorsement at the highest level, (Vice Chancellor, President /Vice President).
3. Draw up working committees to deal at course level. These could be based on research groups
4. Draw up working strategies for a pilot phase, e.g. start off with one exchange involving one course, or one student. Avoid too much bureaucracy but do not overlook the fact that there may be work restrictions.

The one to one departmental model has a great chance of succeeding provided that there is a mutual interest in the exchange and there will be no disruption of the teaching process. At its simplest level it involves the exchange of lecturers within the same subject area. In a typical case a lecturer from a University in Africa proceeds to teach or conduct research in the US for say 4 weeks while his counterpart in the US comes to Africa to teach or conduct research in a related topic. The African lecturer would earn an amount corresponding to that earned by the US lecturer during his stay. The collaboration can be extended to include joint student project with cross-supervision. Such initiatives have a greater chance of succeeding now especially with the development of the internet and is wide application in many African Universities. In a sense, this a forerunner of the inevitable, virtual Universities within the context of the global village.

4 CONCLUSIONS

The problems that face the academic and professional staff in Africa and other developing countries are hurtful to the academics and professionals concerned personally but unfortunately hurt the countries from which they originate. Further, the problems will transcend boundaries and already some countries are experiencing political fallout through perceived social problems from an increased immigrant population. It is hoped that those institutions and countries which are in a position to do so should assist through bilateral and regional initiatives. But perhaps more importantly, it is essential for the institutions in the north and south to interact at a departmental level. This is likely to bring more immediate results and avert the bureaucratic red tape that often impedes progress.

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